SERVICE MANUAL

MIDEA AIRCONDITIONER
Side Air Discharge Type

Factory No.	Sale No.
FR-KC26/N1-EE1(B4)	MWH-09CMN1-QB4
FR-KC26/N1Y-EE1(B4)	MWH-09CRN1-QB4
FR-KCR26/N1-EE1(B4)	MWH-09HMN1-QB4
FR-KCR26/N1Y-EE1(B4)	MWH-09HRN1-QB4
FR-KC35/N1-F1E1(B4)	MWF1-12CMN1-QB4
FR-KC35/N1Y-F1E1(B4)	MWF1-12CRN1-QB4
FR-KCR35/N1-F1E1(B4)	MWF1-12HMN1-QB4
FR-KCR35/N1Y-F1E1(B4)	MWF1-12HRN1-QB4
CE-KC46/N1-FE1(B4)	MWF-16CMN1-QB4
CE-KC46/N1Y-FE1(B4)	MWF-16CRN1-QB4
CE-KCR46/N1-FE1(B4)	MWF-16HMN1-QB4
CE-KCR46/N1Y-FE1(B4)	MWF-16HRN1-QB4

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■ 1. Precaution

■ 1.1 Safety Precaution.

- **To prevent injury to the user or other people and property damage, the following instructions must be followed.**
- **Incorrect operation due to ignoring instruction will cause harm or damage.**

  Before service unit, be sure to read this service manual at first.

■ 1.2 Warning.

Installation

- **Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.**

  There is risk of fire or electric shock.
- **For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized service center.**

  Do not disassemble or repair the product, there is risk of fire or electric shock.
- **Always ground the product.**

  There is risk of fire or electric shock.
- **Install the panel and the cover of control box securely.**

  There is risk of fire of electric shock.
- **Always install a dedicated circuit and breaker.**

  Improper wiring or installation may cause fore or electric shock.
- **Use the correctly rated breaker of fuse.**

  There is risk of fire or electric shock.
- **Do not modify or extend the power cable.**

  There is risk of fire or electric shock.
- **Do not install, remove, or reinstall the unit by yourself(customer).**

  There is risk of fire, electric shock, explosion, or injury.
- **Be caution when unpacking and installing the product.**

  Sharp edges could cause injury, be especially careful of the case edges and the fins on the condenser and evaporator.
- **For installation, always contact the dealer or an Authorized service center.**

There is risk of fire, electric shock, explosion, or injury.

- **Do not install the product on a defective installation stand.**

It may cause injury, accident, or damage to the product.

- **Be sure the installation area does not deteriorate with age.**

If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.

- **Do not let the air conditioner run for a long time when the humidity is very high and a door or a window is left open.**

Moisture may condense and wet or damage furniture.

- **Take care to ensure that power cable could not be pulled out or damaged during operation.**

There is risk of fire or electric shock.

- **Do not place anything on the power cable.**

There is risk of fire or electric shock.

- **Do not plug or unplug the power supply plug during operation.**

There is risk of fire or electric shock.

- **Do not touch (operation) the product with wet hands.**

There is risk of fire or electric shock.

- **Do not place a heater or other appliance near the power cable.**

There is risk of fire and electric shock.

- **Do not allow water to run into electric parts.**

It may cause fire, failure of the product, or electric shock.

- **Do not store or use flammable gas or combustible near the product.**

There is risk of fire or failure of product.

- **Do not use the product in a tightly closed space for a long time.**

Oxygen deficiency could occur.

- **When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.**

Do not use the telephone or turn switches on or off. There is risk of explosion or fire.

- **If strange sounds, or small or smoke comes from product. Turn the breaker off or disconnect the power supply cable.**

There is risk of electric shock or fire.

- **Stop operation and close the window in storm or hurricane. If possible, remove the product from the**

window before the hurricane arrives.

There is risk of property damage, failure of product, or electric shock.

- **Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)**

  There is risk of physical injury, electric shock, or product failure.

- **When the product is soaked (flooded or submerged), contact an Authorized service center.**

  There is risk of fire or electric shock.

- **Be caution that water could not enter the product.**

  There is risk of fire, electric shock, or product damage.

- **Ventilate the product from time to time when operating it together with a stove, etc.**

  There is risk of fire or electric shock.

- **Turn the main power off when cleaning or maintaining the product.**

  There is risk of electric shock.

- **When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.**

  There is risk of product damage or failure, or unintended operation.

- **Take care to ensure that nobody could step on or fall onto the outdoor unit.**

  This could result in personal injury and product damage.

CAUTION.

- **Always check for gas (refrigerant) leakage after installation or repair of product.**

  Low refrigerant levels may cause failure of product.

- **Install the drain hose to ensure that water is drained away properly.**

  A bad connection may cause water leakage.

- **Keep level even when installing the product.**

  To avoid vibration of water leakage.

- **Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.**

  It may cause a problem for your neighbors.

- **Use two or more people to lift and transport the product.**

  Avoid personal injury.

- **Do not install the product where it will be exposed to sea wind (salt spray) directly.**

It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

Operational.

- **Do not expose the skin directly to cool air for long periods of time. (Do not sit in the draft).**

This could harm to your health.

- **Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigerant system**

There is risk of damage or loss of property.

- **Do not block the inlet or outlet of air flow.**

It may cause product failure.

- **Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.**

There is risk of fire, electric shock, or damage to the plastic parts of the product.

- **Do not touch the metal parts of the product when removing the air filter. They are very sharp.**

There is risk of personal injury.

- **Do not step on pr put anything on the product. (outdoor units)**

There is risk of personal injury and failure of product.

- **Always insert the filter securely. Clean the filter every two weeks or more often if necessary.**

A dirty filter reduces the efficiency of the air conditioner and could cause product malfunction or damage.

- **Do not insert hands or other object through air inlet or outlet while the product is operated.**

There are sharp and moving parts that could cause personal injury.

- **Do not drink the water drained from the product.**

It is not sanitary could cause serious health issues.

- **Use a firm stool or ladder when cleaning or maintaining the product.**

Be careful and avoid personal injury.

- **Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.**

There is risk of fire or explosion.

- **Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.**

They may burn of explode.

- **If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote of the batteries have leaked.**

The chemical in batteries could cause burns or other health hazards.

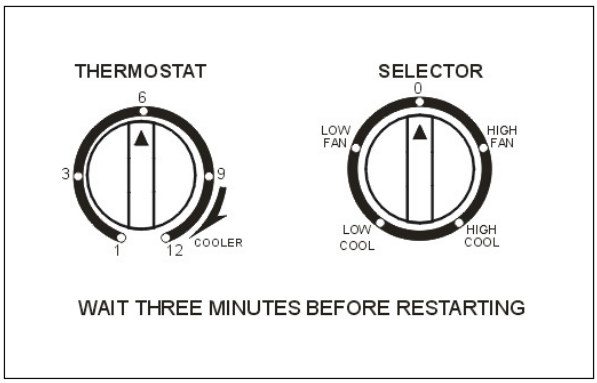
■ 2. Function and control panel.

■ 2.1 Function.

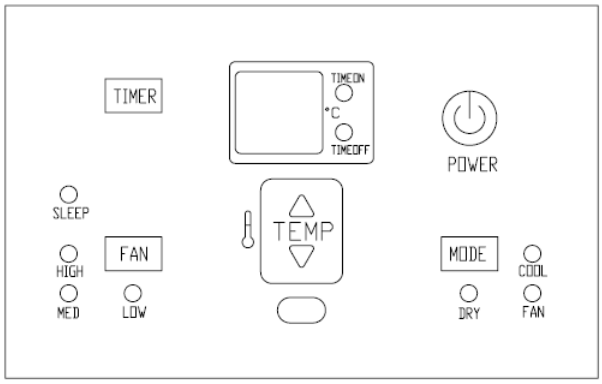
- **Powerful cooling and heating(heat pump and cooling).**
- **Optional mode:dry and auto.**
- **Slide-in and slide-out chassis for the simple installation and service.**
- **Side air-intake, side cooled-air discharge.**
- **Washable one-touch filter and easy removed panel.**
- **Super compact design.**
- **Reliable and efficient rotary compressor is equipped.**
- **Unique Quiet Design.**
- **Fresh air switch.**
- **Sleep mode.**
- **Swing function for some models.**
- **Auto-on time setting and cancel.**
- **Anti-freezing control in cooling mode. Prevent the water being freezed on evaporator by sensing the evaporator pipe temperature in cooling mode.**
- **Time Delay Safety. Restarting is for approx. 3 minutes.**
- **Auto-restart, When the power supply is interrupted and then restore, the air conditioners automatically restore the previous function setting.**
- **Auto defrosting for cooling/heating products.**

■ 2.2 Control panel.

(1). 9K…Cooling only

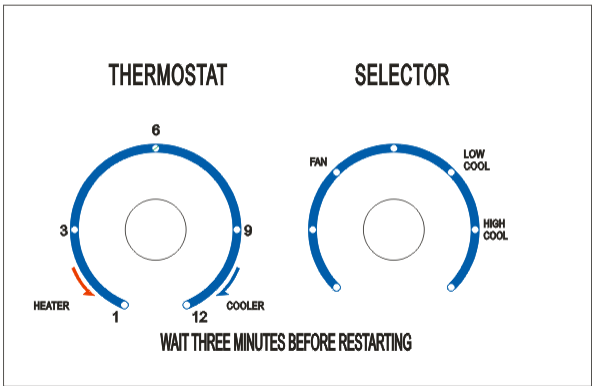


Mechanical control panel

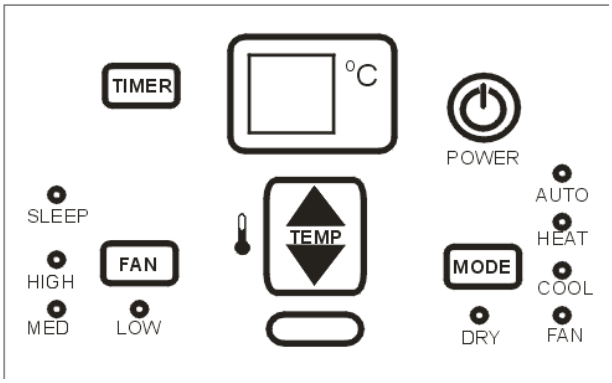


Remote control panel

(2). 9K…Heat Pump

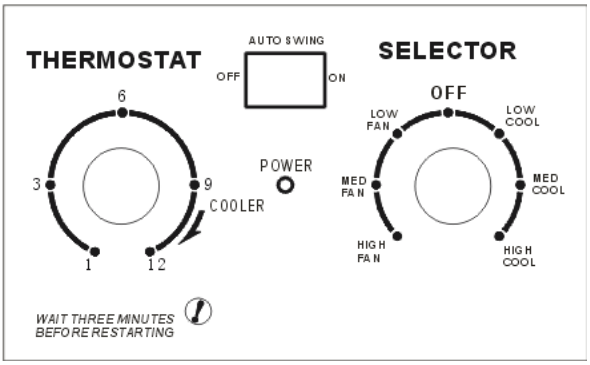


Mechanical control panel

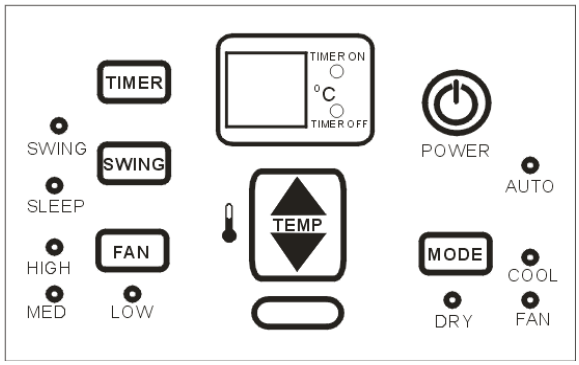


Remote control panel

(3). 12K…Cooling only

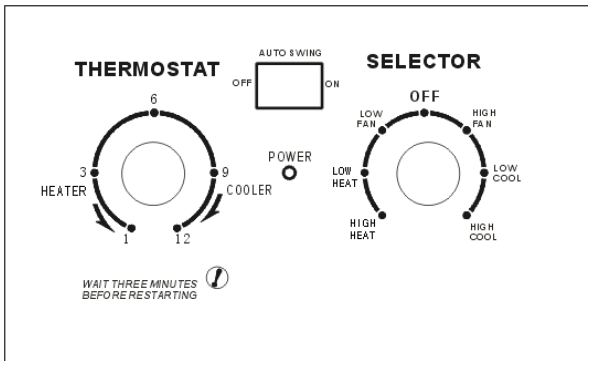


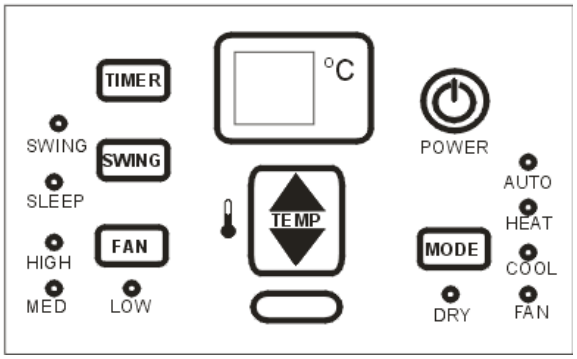
Mechanical control panel



Remote control panel

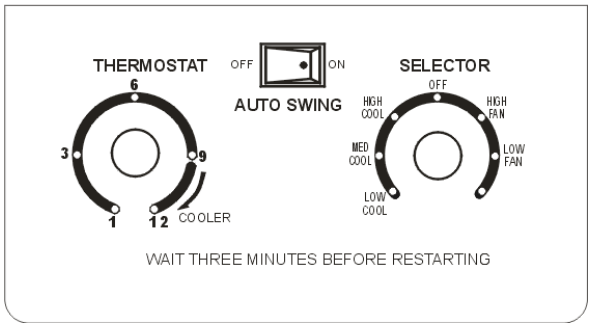
(4). 12K…Heat Pump

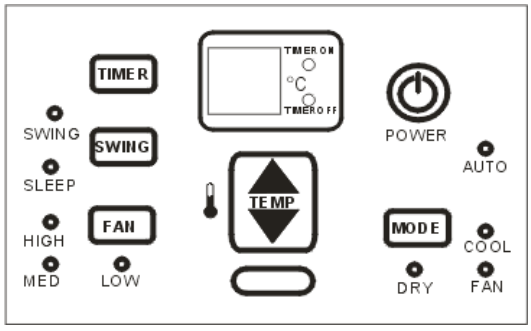




Mechanical control panel **Remote control panel**

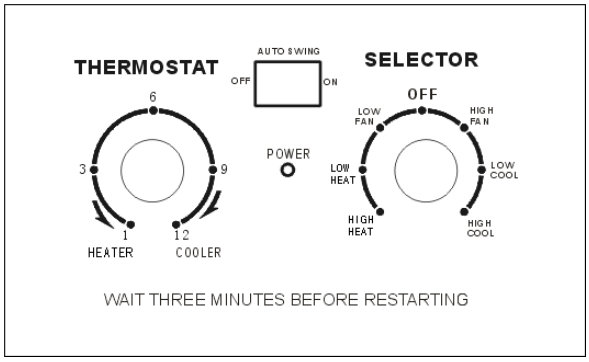
(5). 16K…Cooling only

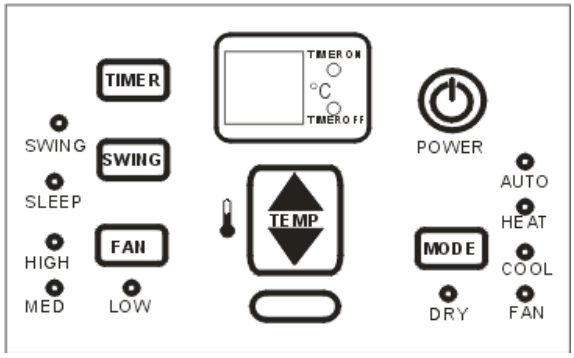




Mechanical control panel **Remote control panel**

(6). 16K…Heat Pump





Mechanical control panel **Remote control panel**

■ 3. Dimension.

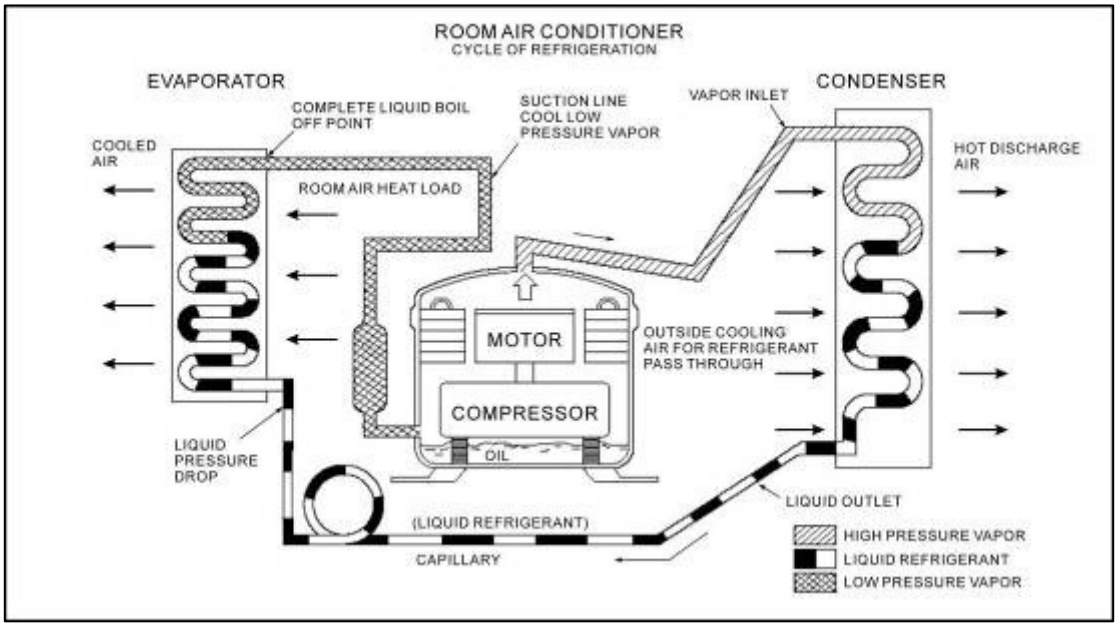
E1 series

Dimension Mode	W	H	D
9K	450	346	535
12K	600	380	560
16K	660	430	687

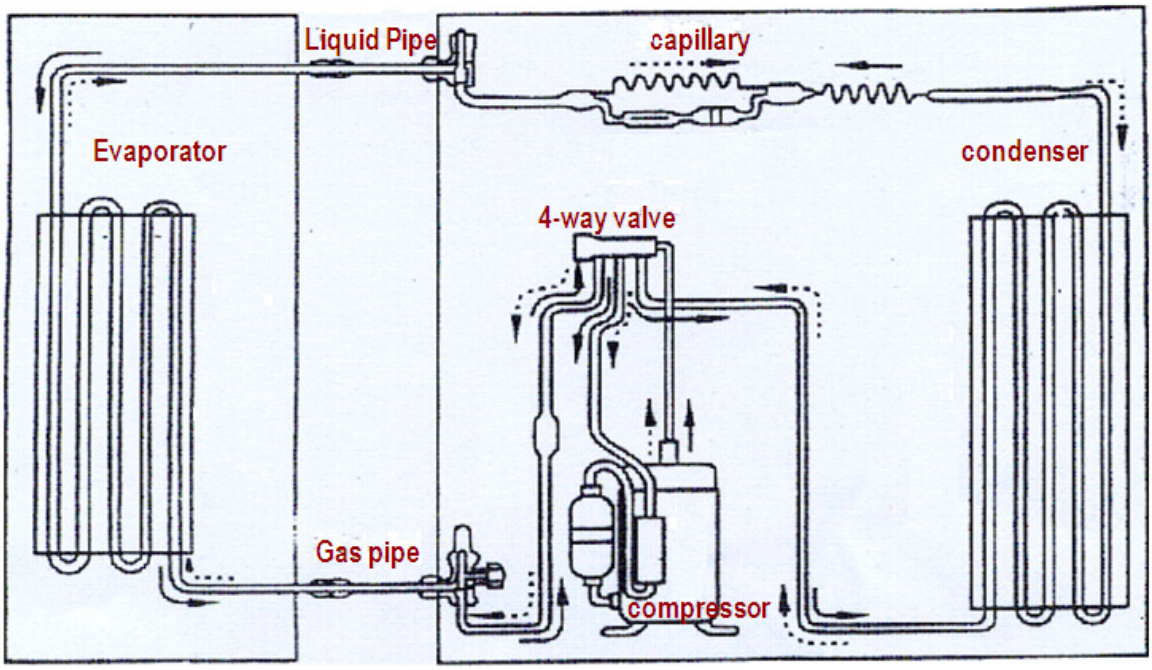
■ 4. Refrigerant Cycle Diagram.

The figure below is a brief description of the important components and their function in what is called the refrigeration system.
This will help to understand the refrigeration cycle and the flow of the refrigerant in the cooling cycle or in the heating cycle.

(1).This figure below is fit for Cooling Only Unit.



(2).This figure below is fit for Heat Pump and Cooling Unit.

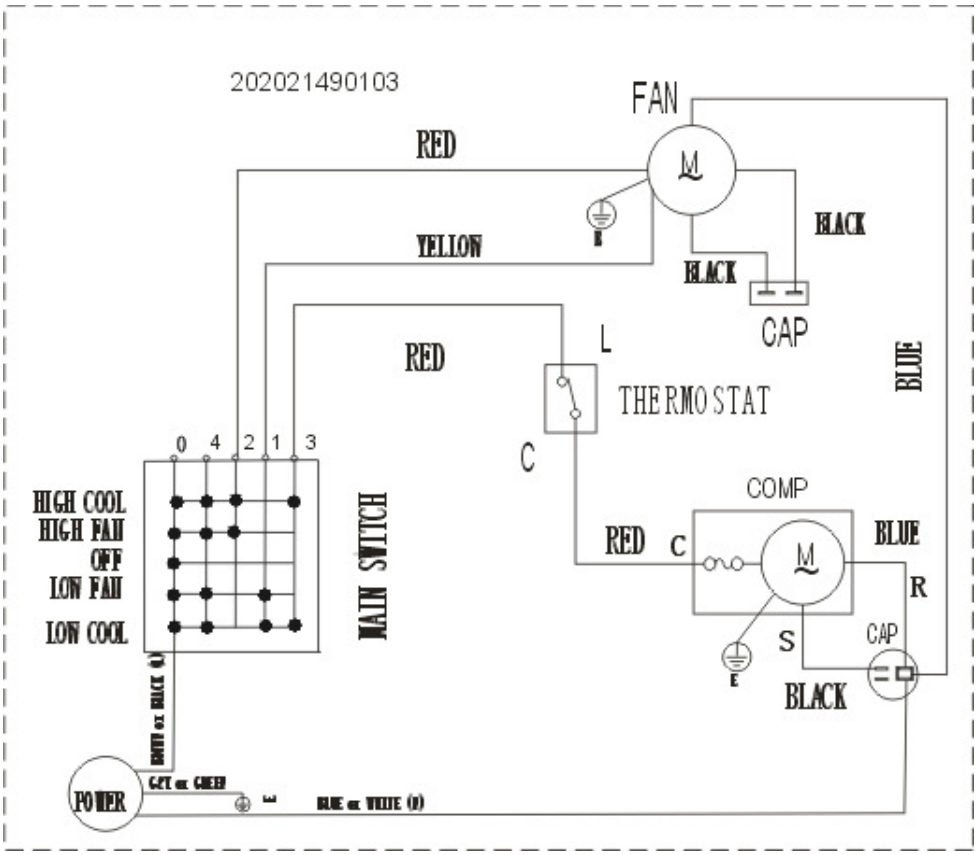


In the cooling mode, the flow direction of refrigerant is ⟶

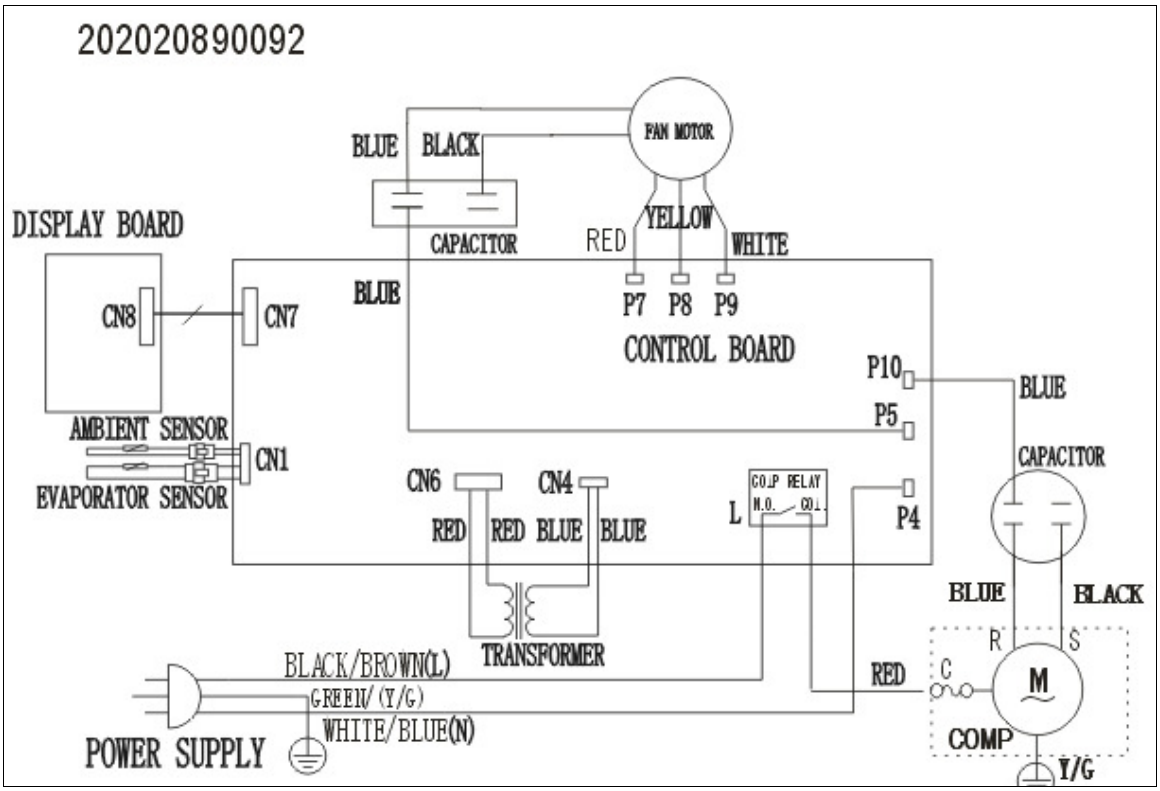
In the heat mode the flow direction of refrigerant is - - →

■ 5. Wiring Diagram.

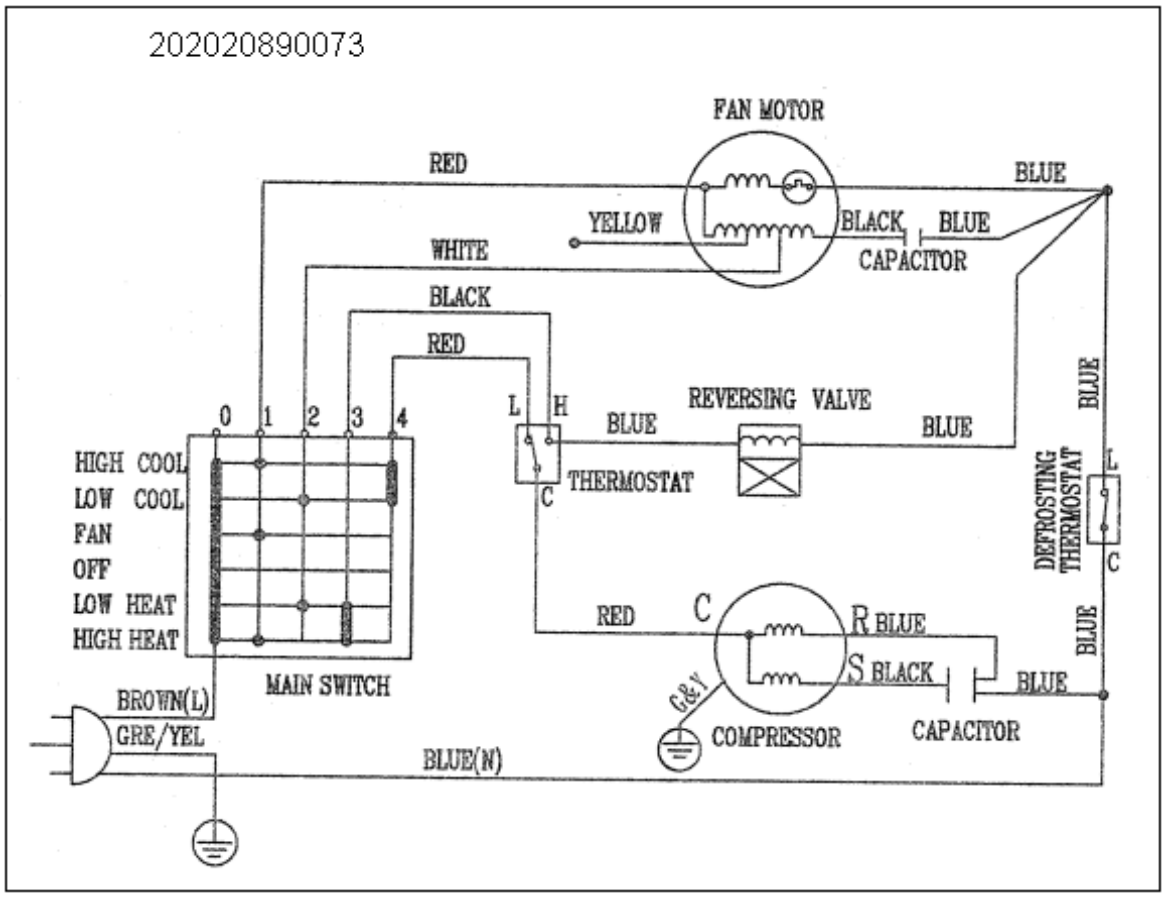
(1).FR-KC26/N1-EE1(B4)(MWH-09CMN1-QB4)



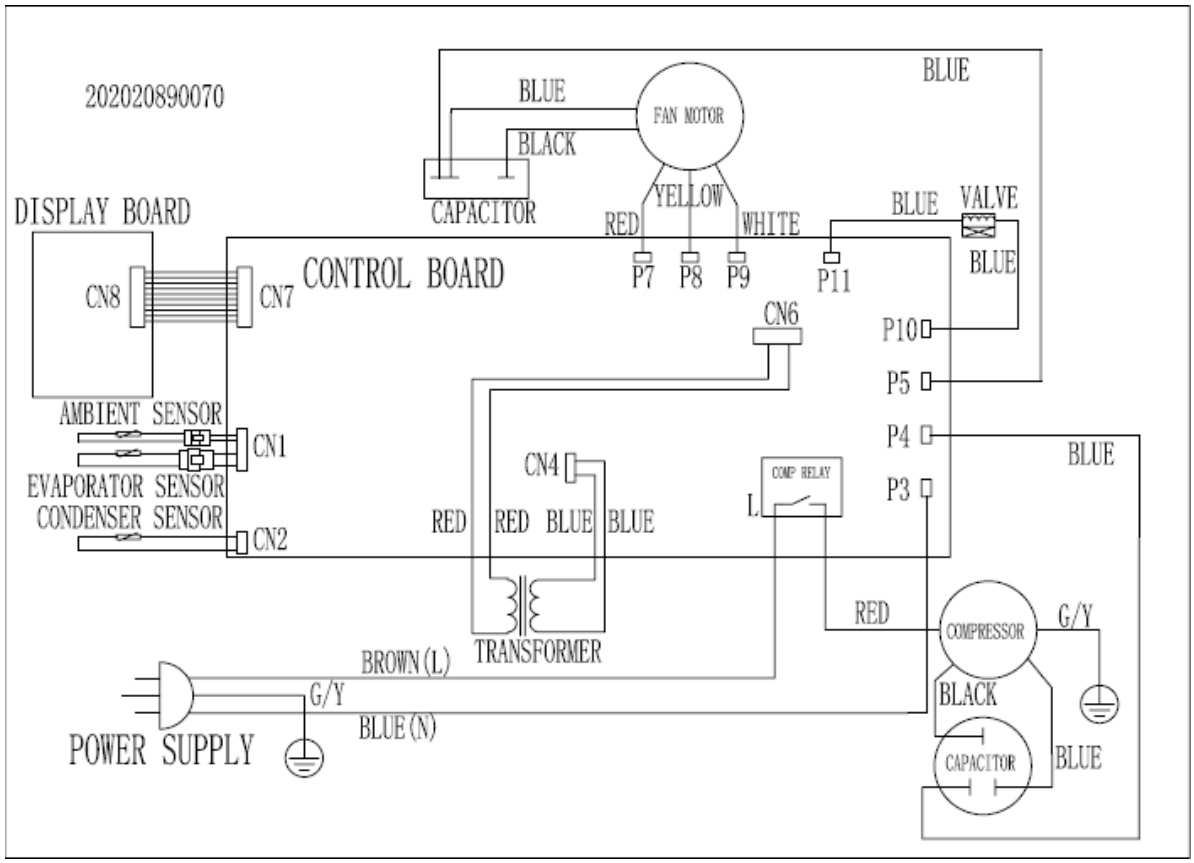
(2). FR-KC26/N1Y-EE1(B4)(MWH-09CRN1-QB4)



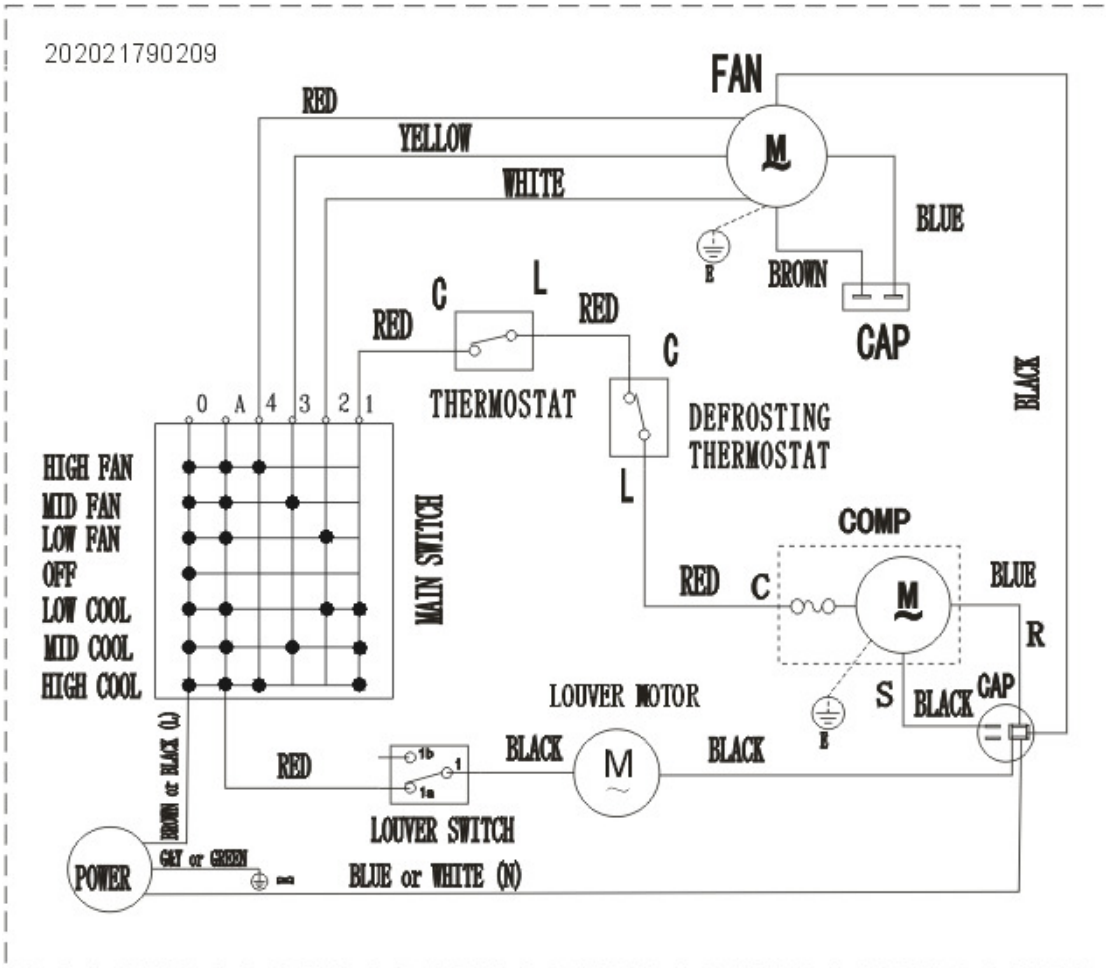
(3). FR-KCR26/N1-EE1(B4)(MWH-09HMN1-QB4)



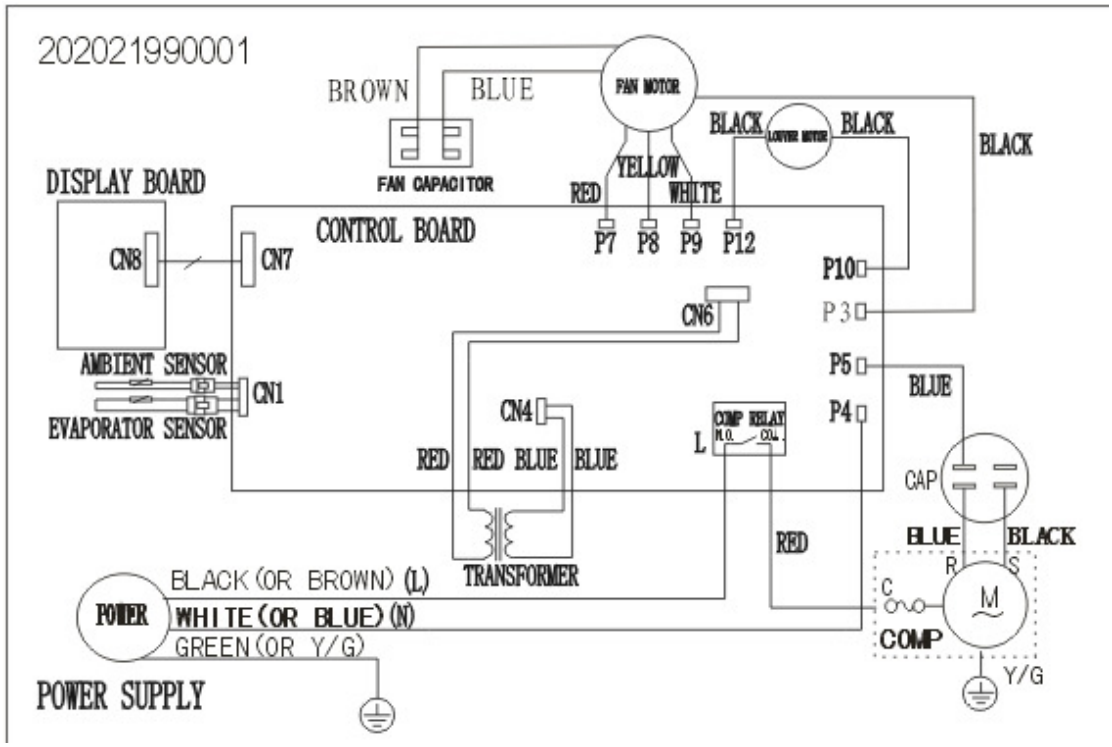
(4). FR-KCR26/N1Y-EE1(B4)(MWH-09HRN1-QB4)



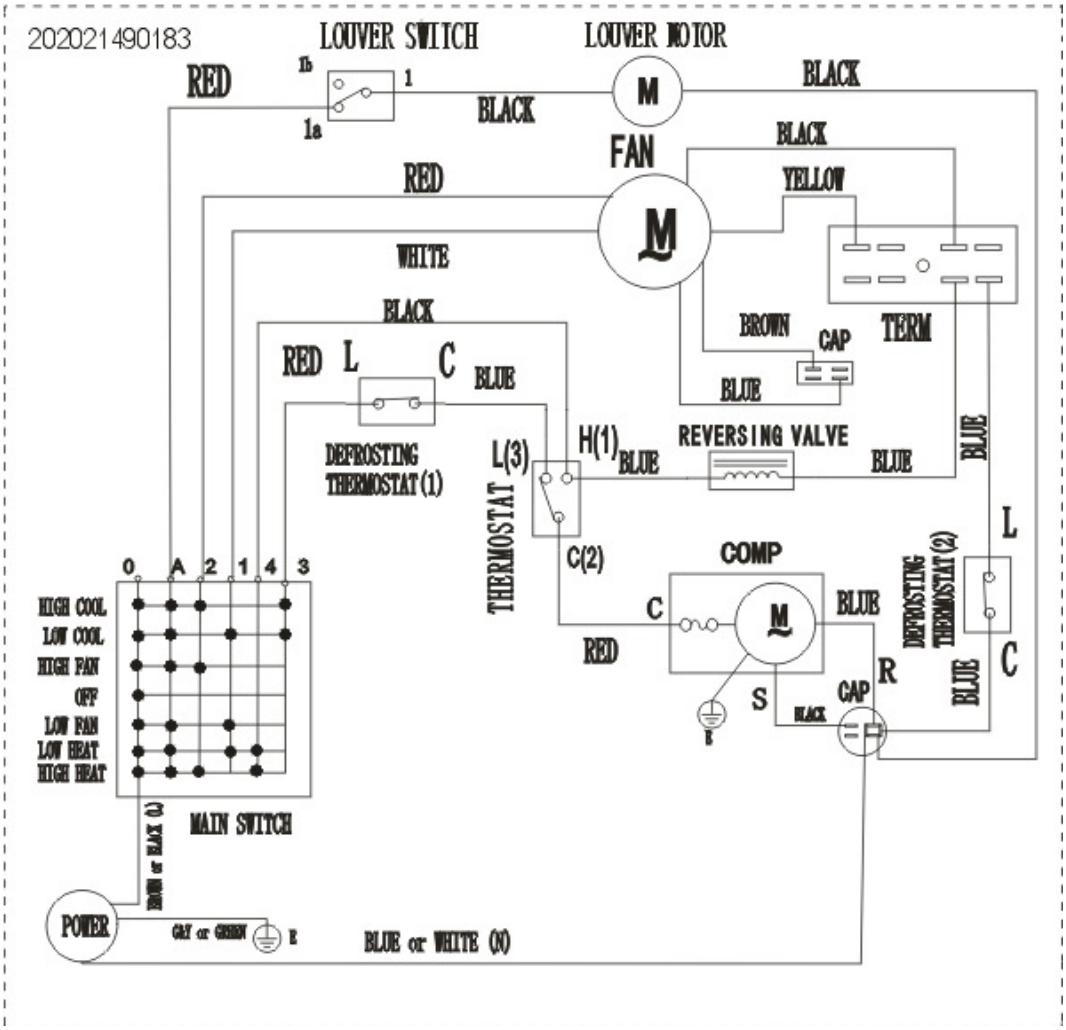
(5). FR-KC35/N1-F1E1(B4)(MWF1-12CMN1-QB4)



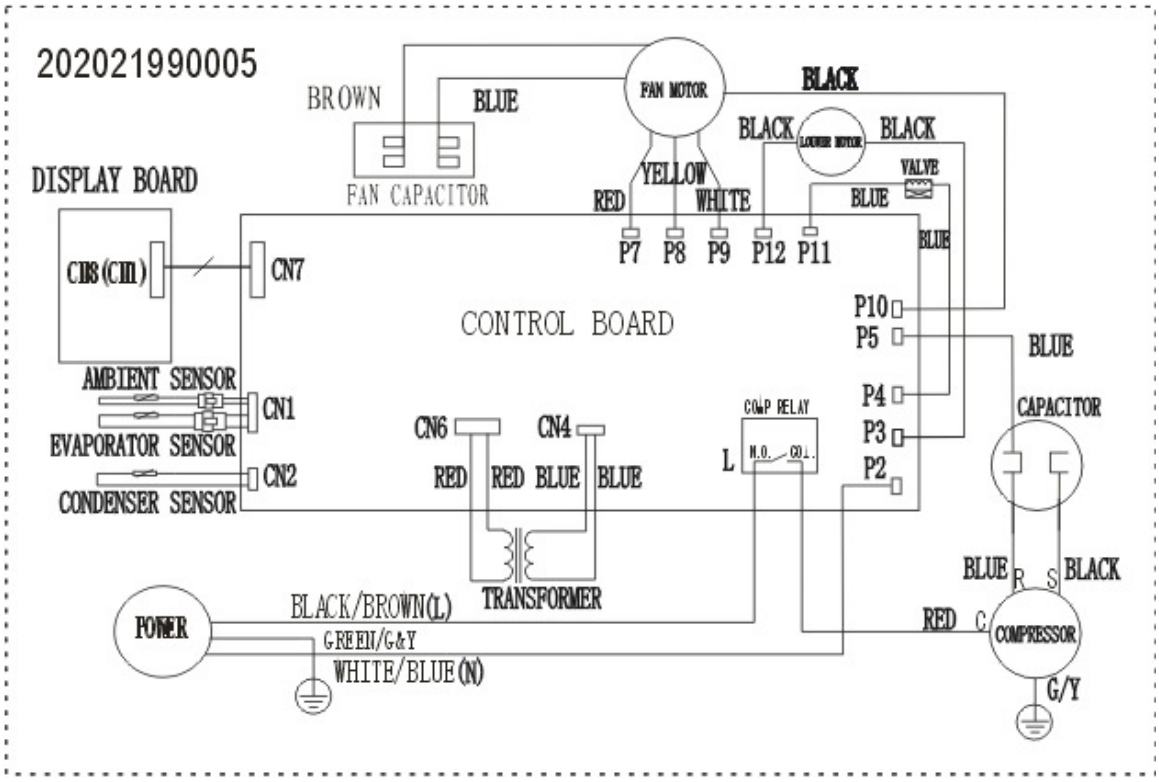
(6). FR-KC35/N1Y-F1E1(B4)(MWF1-12CRN1-QB4)
CE-KC46/N1Y-FE1(B4)(MWF-16CRN1-QB4)



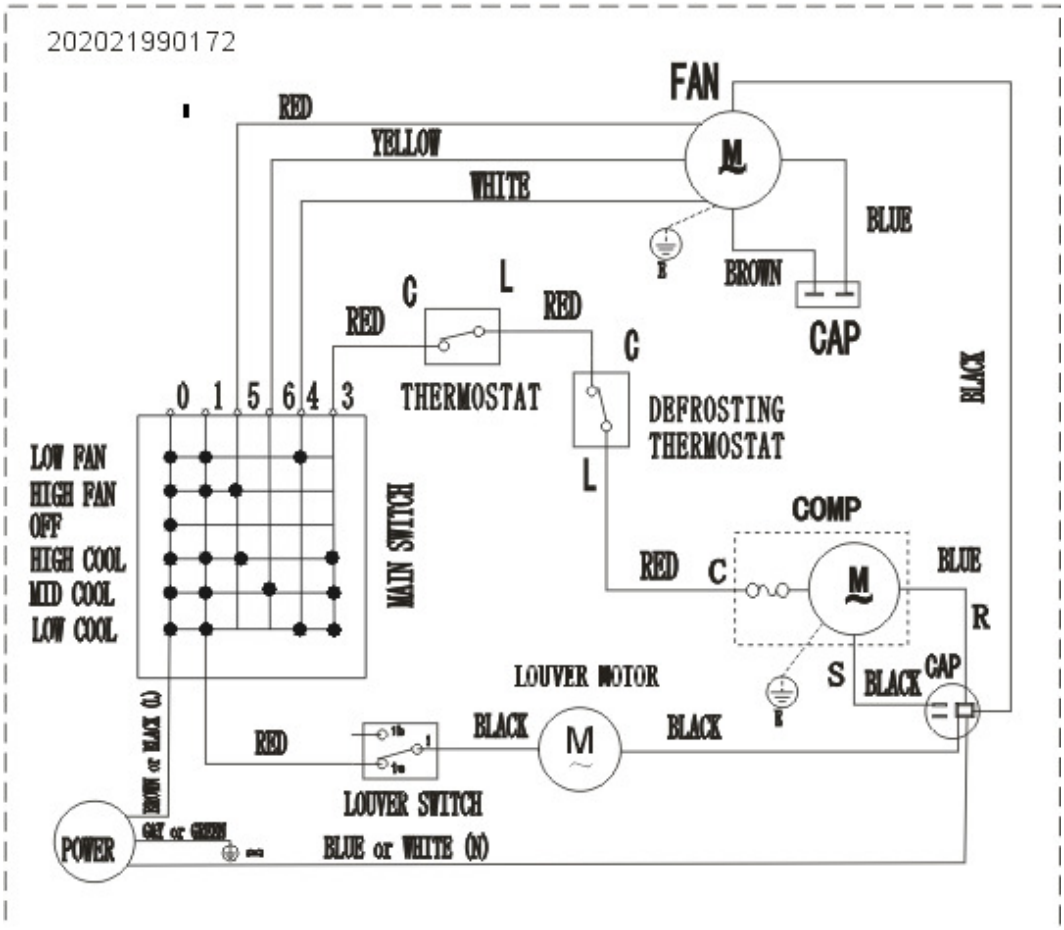
(7). FR-KCR35/N1-F1E1(B4)(MWF1-12HMN1-QB4)



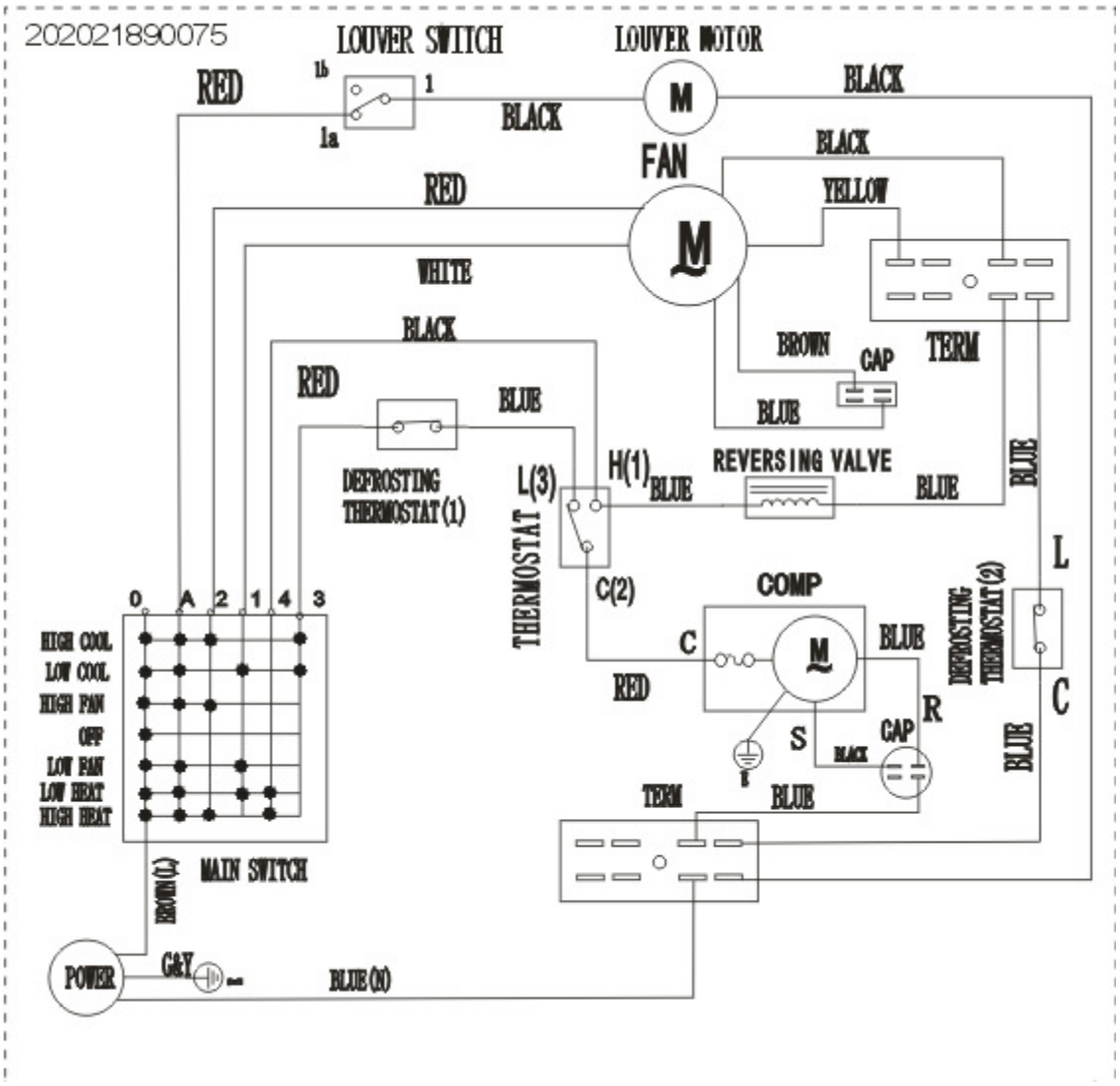
(8). FR-KCR35/N1Y-F1E1(B4)(MWF1-12HRN1-QB4),
CE-KCR46/N1Y-FE1(B4)(MWF-16HRN1-QB4)



(9). CE-KC46/N1-FE1(B4)(MWF-16CMN1-QB4)

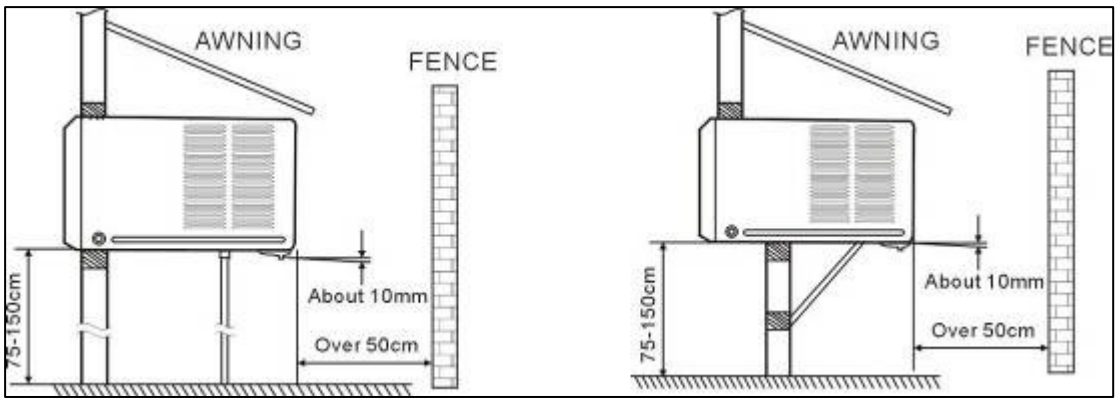


(10). CE-KCR46/N1-FE1(B4)(MWF-16HMN1-QB4)



■ 6 Installation details.

■ 6.1 Select the best location.



1. **To avoid vibration and noise, make sure the unit is installed securely and firmly.**

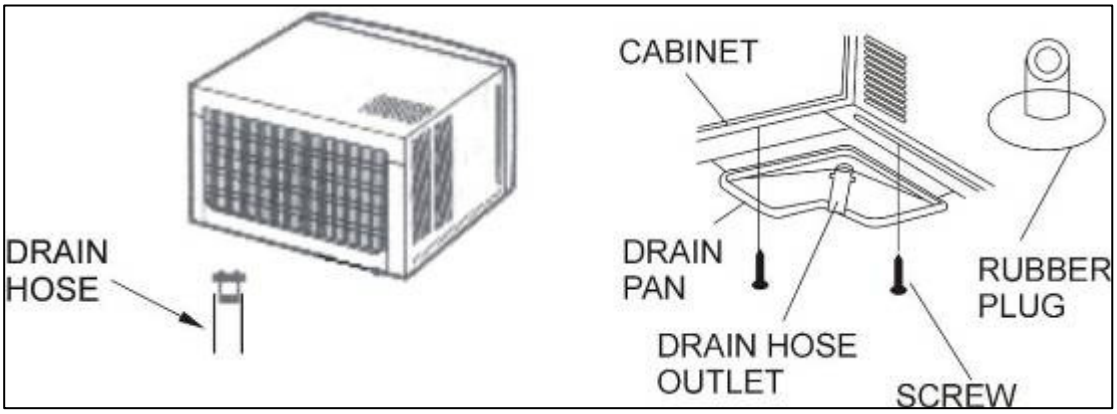
2. **Install the unit where the sunlight does not shine directly on the unit. If the unit receives. direct sunlight, build an awning to shade the cabinet.**
3. **There should be no obstacle, such as a fence or wall, within 50cm from the back of the ambient because it will prevent heat radiation of the condenser.**
4. **Restriction of outside air will greatly reduce the cooling and heating efficiency of the air conditioner.**
5. **Install the unit on a slight angle so that an condensate formed will not enter the room (about 10mm or 1/4 bubble with level).**
6. **Install the unit with its bottom portion 75~150cm above the floor level.**
7. **The power cord must be connected to an independent circuit. The yellow/green wire must be grounded.**

> **CAUTION**
> All side louvres of the cabinet must remain exposed to the outside of the structure.

■ 6.2 Check off installation.

- **The setting conditions must be checked prior to initial starting. The under mentioned items are especially important checking points when the installation is finished.**
- **Grounding wire (yellow/Green) is provided in the power cord. The wire must be grounded.**
- **Ensure that the unit is connected to a suitably rated and dedicated circuit.**
- **To avoid vibration or noise, make sure the air conditioner is installed securely.**
- **Avoid placing furniture of draperies in front of the air inlet and outlet.**

■ 6.3 How to drain.

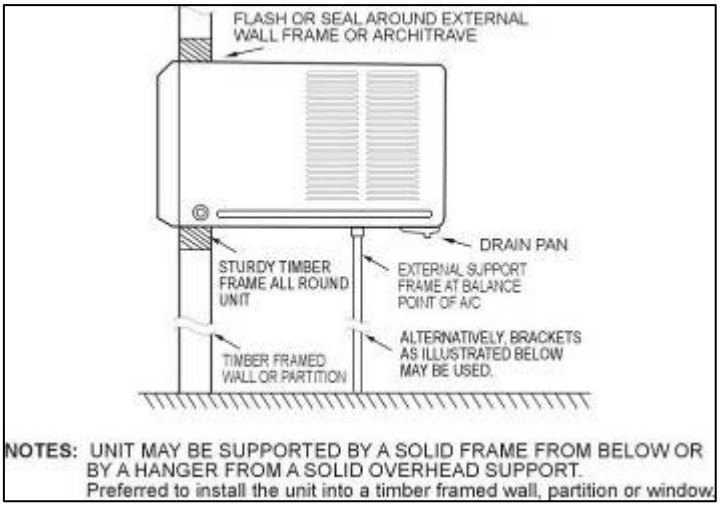


The base pan may overflow due to high humidity. To drain the excess water, remove the drain cap from the bottom of the unit (if fitted) and attach a drain hose (not supplied).

1. **Take the drain pan which is packed with the unit.**
2. **Remove the rubber plug from the bottom of the base pan (if fitted).**
3. **Install the drain pan over the area of the cabinet where you removed the plug, and secure with 2 screws provided.**
4. **Connect the drain hose to the outlet located at the bottom of the drain pan. You can purchase the drain hose or tubing locally to satisfy our particular needs (Drain hose is not supplied).**

■ 6.4 How to install.

■ 6.4.1 Installation of the housing.


FLASH OR SEAL AROUND EXTERNAL WALL FRAME OR ARCHITRAVE
DRAIN PAN
STURDY TIMBER FRAME ALL ROUND UNIT
EXTERNAL SUPPORT FRAME AT BALANCE POINT OF A/C
ALTERNATIVELY, BRACKETS AS ILLUSTRATED BELOW MAY BE USED.
TIMBER FRAMED WALL OR PARTITION
NOTES: UNIT MAY BE SUPPORTED BY A SOLID FRAME FROM BELOW OR BY A HANGER FROM A SOLID OVERHEAD SUPPORT.
Preferred to install the unit into a timber framed wall, partition or window.

Step1

.Remove the air conditioner from it's packaging, remove fixing screws and slide the air conditioner out of it's housing (Refer to Installation Steps)

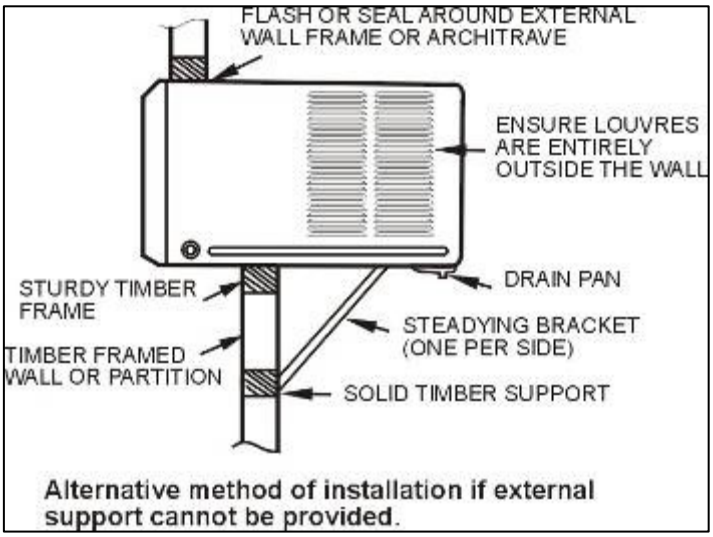
Step2

.Prepare the hole in the wall so that the bottom of the housing is well supported, the top has minimum clearance and the air inlet louvers have clearance as shown below in options A and B (see below6.4.3). Holes from the outside through to the cavity should be sealed. The housing should slope down towards the rear by about 5mm to allow water formed during operation to drain.

Step3

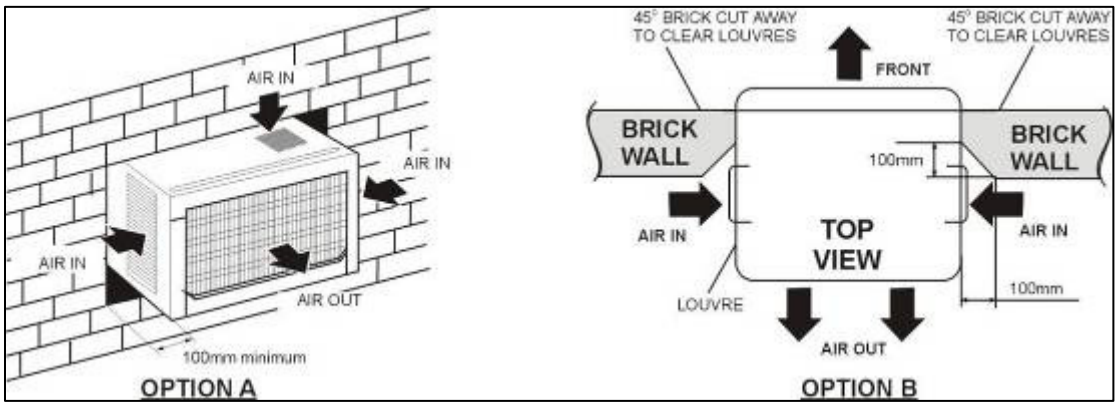
.Install the housing into the wall and secure. Ensure the foam seals are not damaged. Flash, seal or fill gaps around the inside and outside to provide satisfactory appearance and protection against the weather, insects and rodents.

■ 6.4.2 Installation of the unit into the housing.


FLASH OR SEAL AROUND EXTERNAL WALL FRAME OR ARCHITRAVE
ENSURE LOUVRES ARE ENTIRELY OUTSIDE THE WALL
DRAIN PAN
STURDY TIMBER FRAME
STEADYING BRACKET (ONE PER SIDE)
TIMBER FRAMED WALL OR PARTITION
SOLID TIMBER SUPPORT
Alternative method of installation if external support cannot be provided.

- **Slide the unit into the housing until it is firmly against the rear of the housing. Care is required to ensure the foam sealing strips on the housing remain in position.**
- **Connect the air conditioner to the power and position excess cord length beneath the air conditioner base.**
- **Engage the chassis fixing brackets into the bottom housing rail and secure to the base with the screw provided.**
- **Remove the front panel from it's carton and plastic bag and fit as per the installation instruction.**
- **Switch unit on. Check for operation of the unit and check for vibration in the installation.**
- **Fit the drain pan to the housing and run a drain line to a suitable location if required.**

■ 6.4.3 Installation of the unit into the wall.



■ 6.4.4 Installation steps.

Step 1. **Remove the front panel and the air filter.**

.Hold the slot under the front panel, then uplift it outwards, and remove the front panel (See Fig.1).

.Pinch the handle under the air filter and make the air filter arched, remove it from the slot from underside to upside (See Fig.2).

Step 2. **Remove the frame.**

.Remove the two fixing screws from the frame (See Fig.3).

.Grasp the left corner of the frame's underside, then loosen the frame. (See Fig.4).

Step 3. **Installation.**

.Then remove the four screws located on both sides and back sides of the cabinet.(See Fig.5).

.Grasp the handle on the chassis and carefully slide the air conditioner out of the cabinet (See Fig.6).

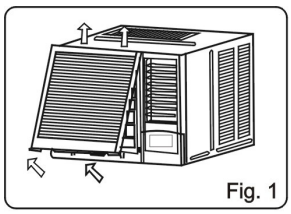


Fig. 1

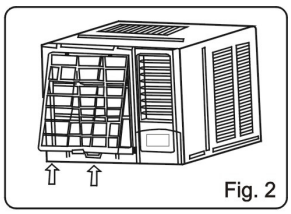


Fig. 2

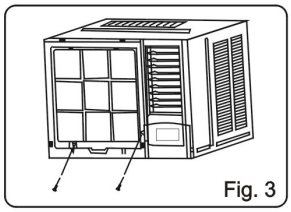


Fig. 3

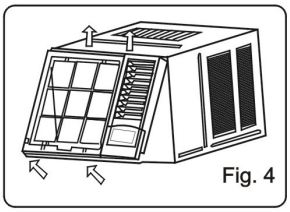


Fig. 4

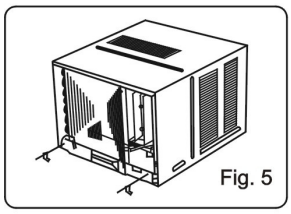


Fig. 5

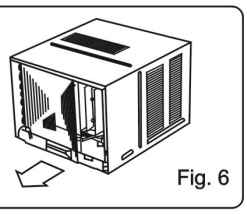


Fig. 6

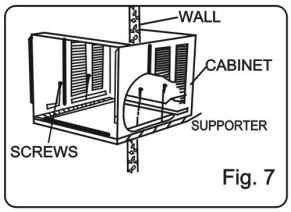


Fig. 7

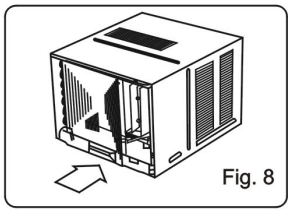


Fig. 8

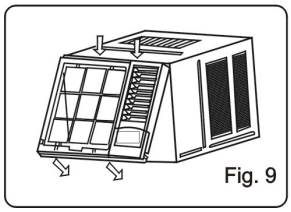


Fig. 9

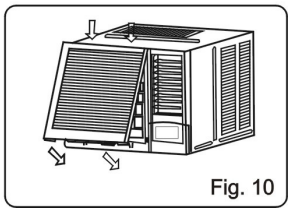


Fig. 10

.Remove shipping pad from around compressor before operation and make sure the discharge points to the drain pan are aligned before the chassis is pushed into the cabinet (See Fig.7).

.Push the unit chassis into the cabinet (See Fig.8).

.Install the two chassis fixing brackets using the two fixing screws (See Fig.5).

Step 4. **Install the frame.**

.Install the frame making sure not to interfere with the temperature sensor cable (See Fig.9).

.Fix the screws on the frame (See Fig.3).

Step 5. **Install the air filter and front panel.**

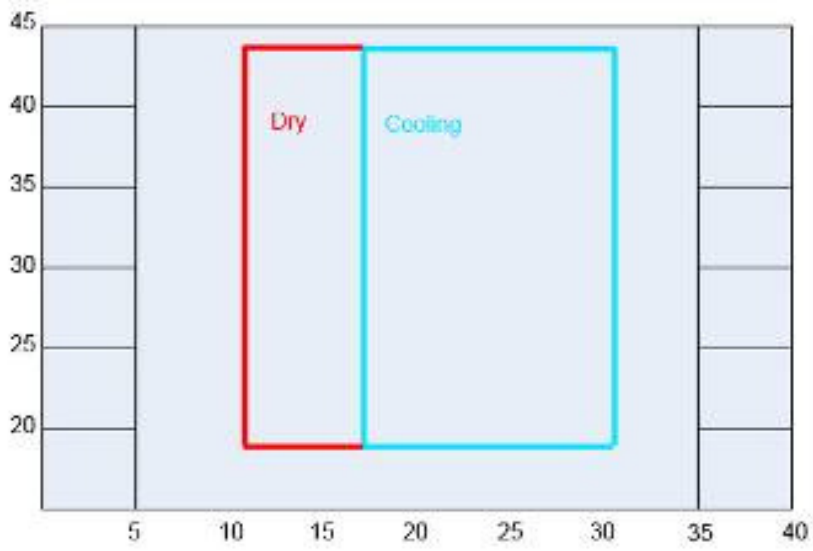
.Install the air filter into the frame's slot from upside to underside (See Fig.2).

.Hang the front panel on the frame's buckle, then press the front panel into the frame's slot until you hear a click (See Fig10).

■ 7 Operation characteristics.

■ 7.1 Cooling operation.

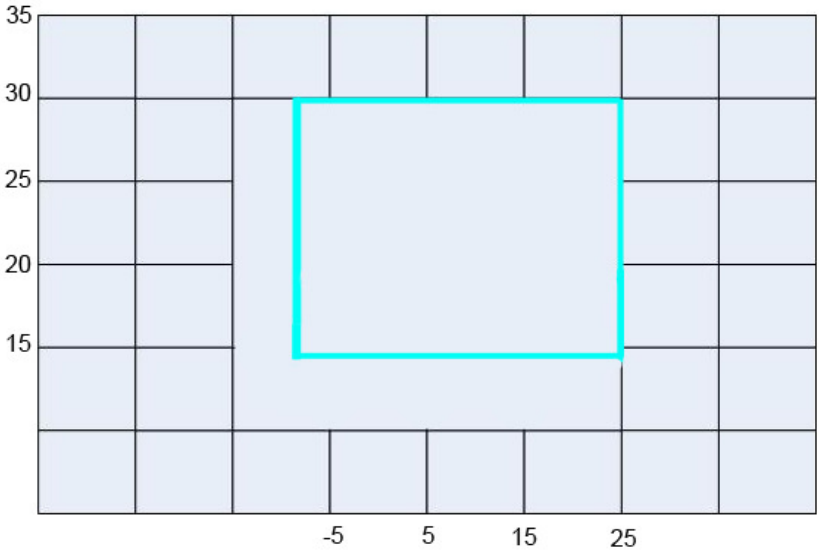
Outdoor air temp.℃ DB



ndoor air temp. ℃ DB

■ 7.2 Heating operation.

Indoor air temp.℃ DB



Outdoor air temp.℃ DB

■ 7.3 Characteristic of temperature sensor.

Temp.℃	Resistance KΩ	Temp.℃	Resistance KΩ	Temp.℃	Resistance KΩ
-10	62.2756	17	14.6181	44	4.3874
-9	58.7079	18	13.918	45	4.2126
-8	56.3694	19	13.2631	46	4.0459
-7	52.2438	20	12.6431	47	3.8867
-6	49.3161	21	12.0561	48	3.7348
-5	46.5725	22	11.5	49	3.5896
-4	44	23	10.9731	50	3.451
-3	41.5878	24	10.4736	51	3.3185
-2	39.8239	25	10	52	3.1918
-1	37.1988	26	9.5507	53	3.0707
0	35.2024	27	9.1245	54	2.959
1	33.3269	28	8.7198	55	2.8442
2	31.5635	29	8.3357	56	2.7382
3	29.9058	30	7.9708	57	2.6368
4	28.3459	31	7.6241	58	2.5397
5	26.8778	32	7.2946	59	2.4468
6	25.4954	33	6.9814	60	2.3577
7	24.1932	34	6.6835	61	2.2725
8	22.5662	35	6.4002	62	2.1907
9	21.8094	36	6.1306	63	2.1124
10	20.7184	37	5.8736	64	2.0373
11	19.6891	38	5.6296	65	1.9653
12	18.7177	39	5.3969	66	1.8963
13	17.8005	40	5.1752	67	1.830
14	16.9341	41	4.9639	68	1.7665
15	16.1156	42	4.7625	69	1.7055
16	15.3418	43	4.5705	70	1.6469

■ 8. Protection Function.

■ 8.1 Proper symbols and their meaning.

*** T1: Indoor ambient temperature.**

***.T2: Indoor evaporator temperature.**

***.T3: Outdoor condenser temperature.**

***.Ts: Setting temperature through the remote controller.**

■ 8.2 Protection Function.

■ 8.2.1 Three minutes delay at restart for compressor.

■ 8.2.2 Anti-freezing protection at cooling or dry mode.

(1).Anti-freezing control according to T2 (Indoor evaporator temperature).

If the evaporator pipe temperature had been lower than 1℃ for 14 minutes, the evaporator anti-freezing protection will be activated. The compressor will keep off in the following 5 minutes.

5 minutes later, if the evaporator pipe temperature is still lower than 1℃, the compressor will stay off. If the temperature gets higher than 1℃, the compressor will be started and the function is cancelled.

(2).Anti-freezing control according to TIME.

If the lasting time of compressor which is continuously running has got to 105 minutes with fan motor operating under Med or Low speed and the indoor ambient temperature lower than 26℃, the anti-freezing function will be activated. The compressor will keep off for 3 minutes.

(3).Note:

If the compressor stops operation, the time will be cleared.

If the fan motor turns to High speed or the indoor ambient temperature gets over 26℃, the time will keep inactive, not be cleared.

■ 8.2.3 Anti-frosting protection and defect at cooling or dry mode.

.3 minutes later when compressor is running, if T2 has been less than -15℃ for subsequent 3 minutes, the anti-frosting protection is activated and compressor will stop in the following 6 minutes.

.After that, if the condition for defrosting function is met again in the following 10 minutes while the compressor is operating, the unit will display 'Ed' to indicate that the unit is in the defrost defect. The compressor and fan motor will be OFF.

Note:The Defect display can be cancelled only by pressing the ON/OFF button on the unit or the remote controller.

■ 8.2.4 Auto-defrosting function in heating mode.

.If T3 (condenser pipe temperature) has been lower than 0℃ for 40 minutes, the function will be activated.

.The compressor will be ON while reverse valve and fan motor are OFF.

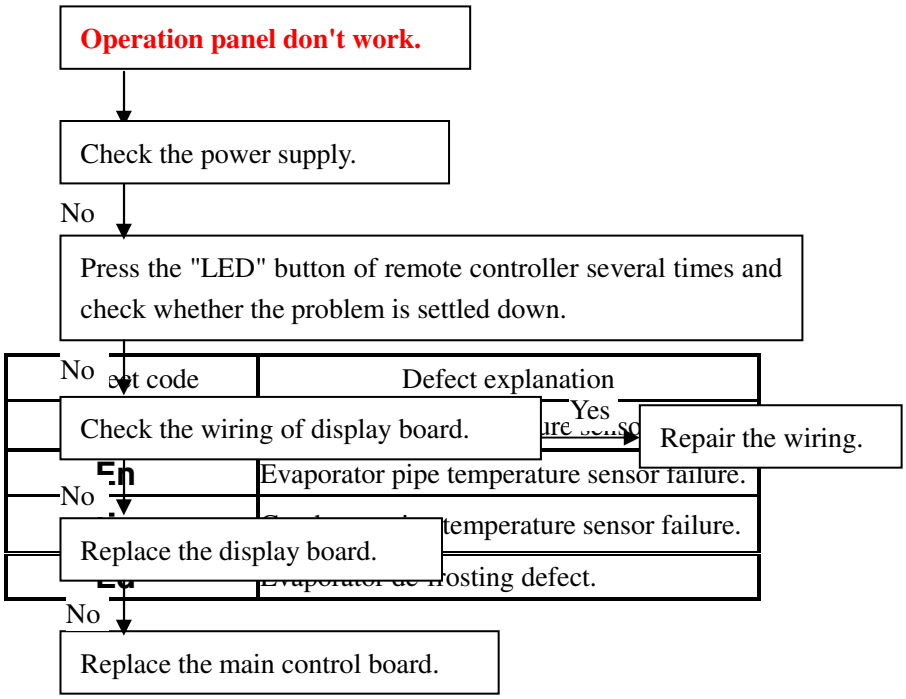
.If T3 (condenser pipe temperature gets over 20℃) or the defrosting time gets to 10 minutes,the function will be cancelled.

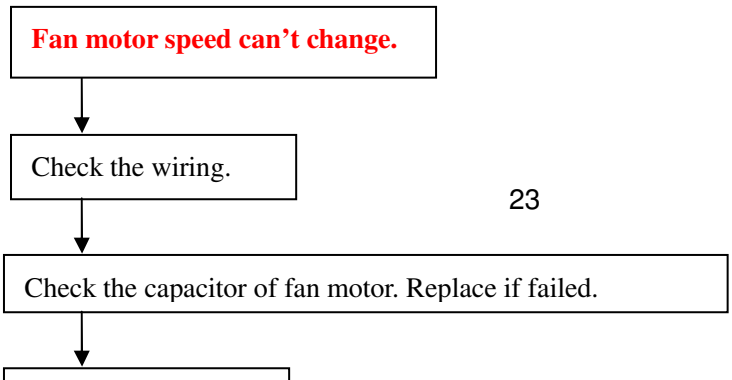
.After that, the compressor will shut down immediately with the fan motor starts.35 seconds later, the reverse valve will be ON and the compressor will be ON after another 3 seconds.

■ 8.2.5 Temperature sensor is open circuit or short circuit.

■ 9 Troubleshooting.

In general, possible trouble is classified in three kinds. One is called Starting Failure which is caused from an electrical defect, another is ineffective Air Conditioning caused by a defect in the refrigeration circuit and improper application, and the other is called the Structure Damage.

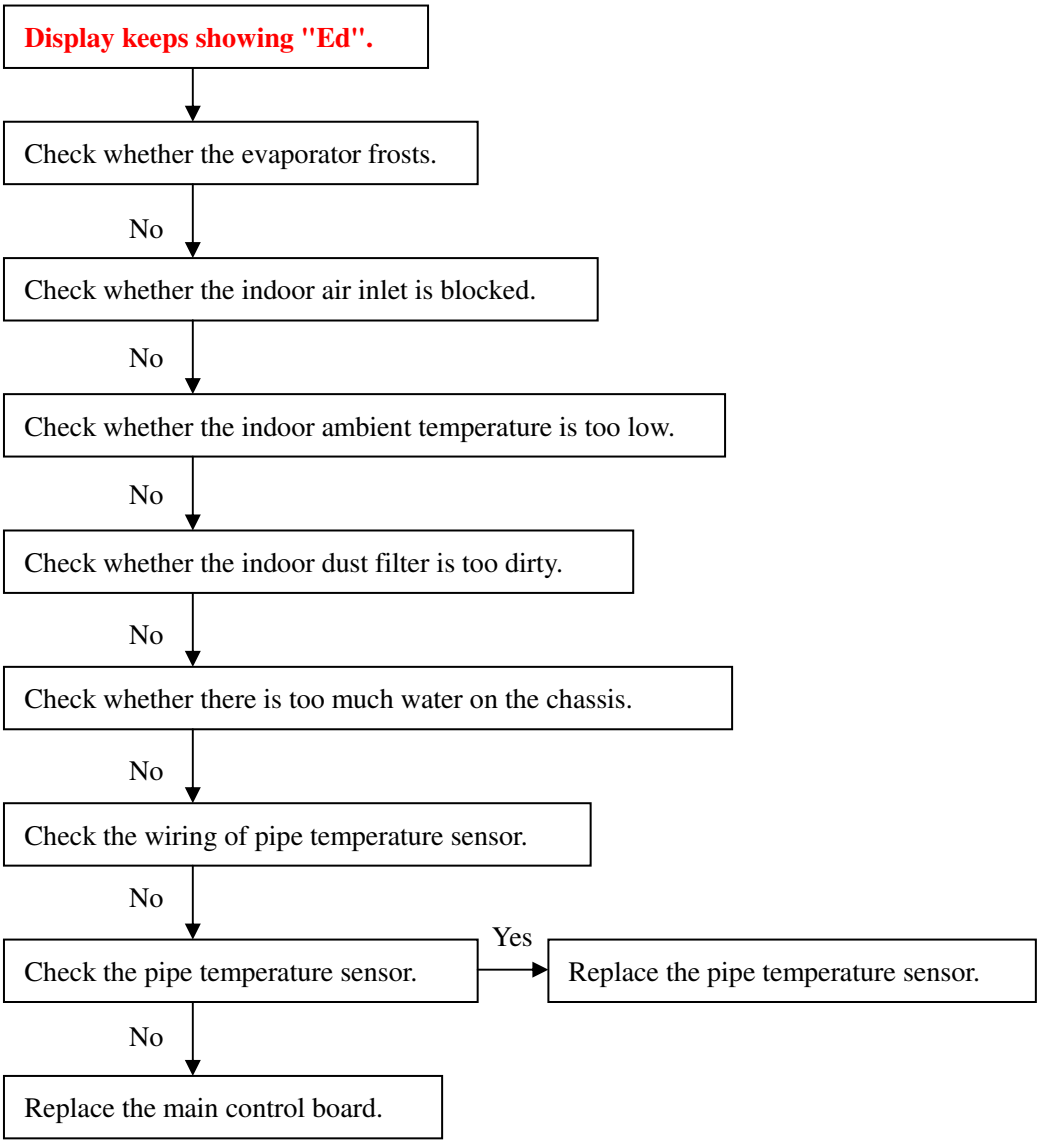

Operation panel don't work.
Check the power supply.
No
Press the "LED" button of remote controller several times and check whether the problem is settled down.
No
Check the wiring of display board.
Yes
Repair the wiring.
No
Replace the display board.
No
Replace the main control board.

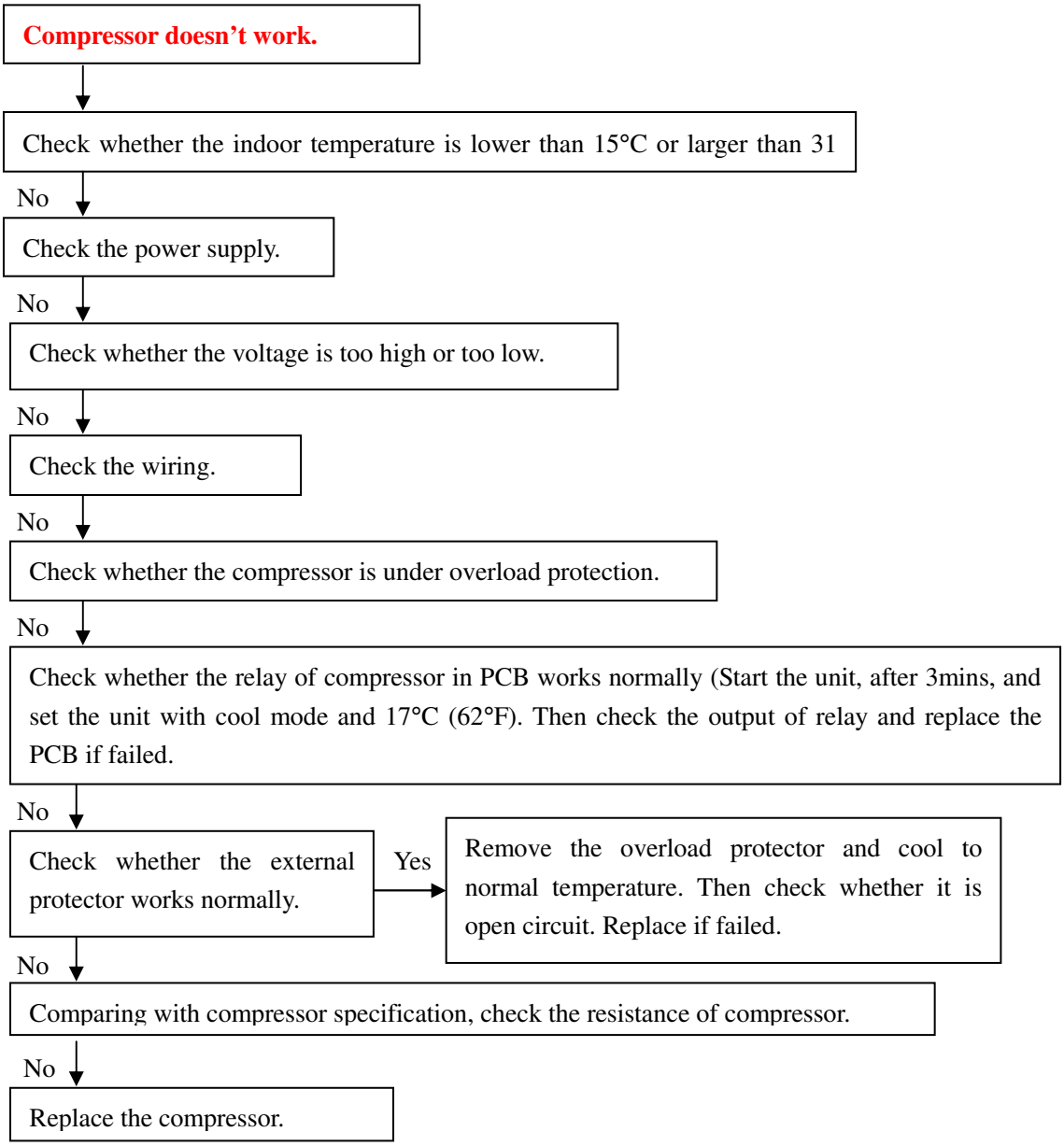


No

No

No


Display keeps showing "Ed".
Check whether the evaporator frosts.
No
Check whether the indoor air inlet is blocked.
No
Check whether the indoor ambient temperature is too low.
No
Check whether the indoor dust filter is too dirty.
No
Check whether there is too much water on the chassis.
No
Check the wiring of pipe temperature sensor.
No
Check the pipe temperature sensor.
Yes
Replace the pipe temperature sensor.
No
Replace the main control board.


Compressor doesn't work.
Check whether the indoor temperature is lower than 15°C or larger than 31
No
Check the power supply.
No
Check whether the voltage is too high or too low.
No
Check the wiring.
No
Check whether the compressor is under overload protection.
No
Check whether the relay of compressor in PCB works normally (Start the unit, after 3mins, and set the unit with cool mode and 17°C (62°F). Then check the output of relay and replace the PCB if failed.
No
Check whether the external protector works normally.
Yes
Remove the overload protector and cool to normal temperature. Then check whether it is open circuit. Replace if failed.
No
Comparing with compressor specification, check the resistance of compressor.
No
Replace the compressor.

Cooling mode don't work or cooling not enough.

↓

Check the operation mode.

No ↓

Check the setting temperature.

No ↓

Check whether dust filter is too dirty.

No ↓

Start the unit with cool mode and check whether the temperature of compressor's discharge pipe is smaller than 90 ℃. If no, recharge refrigerant.

No ↓

Replace the capillary.

The air-con doesn't work.

↓

Check the power supply.

No ↓

Check the wiring.

No ↓

Check whether the transformer is failed. Measure the output voltage of transformer and check whether it is the range from +5V to 12V. If not, replace the transformer.

The compressor operates run-stop frequently.

↓

Check whether the airflow passage is blocked.

No ↓

Check whether the fan motor doesn't work.

No ↓

Check whether capacitor of compressor work normally.

No ↓

Check whether the relay of compressor on PCB works normally.

No ↓

Replace the PCB.

No ↓

Check whether the capillary is blocked.

No ↓

Replace the capillary.

No ↓

Replace the compressor.

Water drips from the unit.

↓

Check whether the ambient humidity is too high.

No ↓

Check whether the indoor outlet airflow foam is too wet, and louver drip.

↓

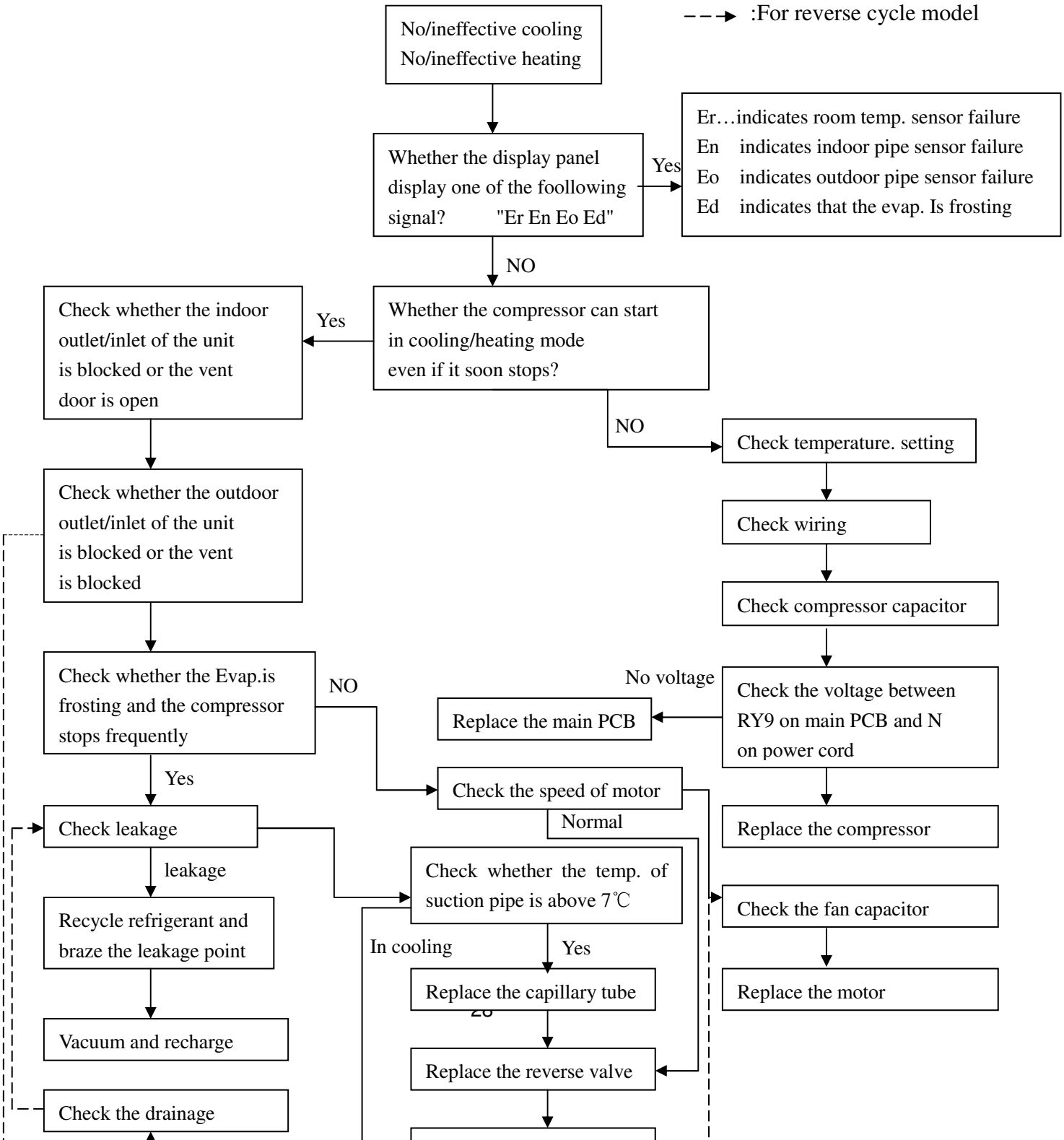
Check whether the unit is correctly installed.

No

No

No

No


:For reverse cycle model
No/ineffective cooling
No/ineffective heating
Whether the display panel display one of the foollowing signal? "Er En Eo Ed"
Yes
Er…indicates room temp. sensor failure
En indicates indoor pipe sensor failure
Eo indicates outdoor pipe sensor failure
Ed indicates that the evap. Is frosting
NO
Whether the compressor can start in cooling/heating mode even if it soon stops?
Yes
Check whether the indoor outlet/inlet of the unit is blocked or the vent door is open
NO
Check temperature. setting
Check wiring
Check compressor capacitor
Check the voltage between RY9 on main PCB and N on power cord
No voltage
Replace the main PCB
Replace the compressor
Check the fan capacitor
Replace the motor
Check whether the outdoor outlet/inlet of the unit is blocked or the vent is blocked
Check whether the Evap.is frosting and the compressor stops frequently
NO
Yes
Check leakage
leakage
Recycle refrigerant and braze the leakage point
Vacuum and recharge
Check the drainage
Check the speed of motor
Normal
Check whether the temp. of suction pipe is above 7℃
In cooling
Yes
Replace the capillary tube
Replace the reverse valve

PROBLEM	POSSIBLE CAUSE	REMARK
Fan motor will not run.	No power	Check voltage at electrical outlet. Correct if none.
	Power supply cord	Check voltage at the power cord terminal. Replace the power cord if none.
	Wire disconnected or connection loose	Connect wire. Refer to wiring diagram for terminal identification. Repair or replace loose terminal.
	Main switch failure	Check and replace the main switch if failure.
	Capacitor (Discharge capacitor before testing)	Test capacitor. Replace if not within +/-10% of manufacture's rating. Replace if shorted, open or damaged.
	Will not rotate	Fan blade hitting shroud or blower hitting scroll. Check fan motor bearings. Replace the motor if motor shaft do not rotate. Realign assembly.
Fan motor runs intermittently	Cycles on overload.	Check voltage. Call an electrician if not within limits.
		Test capacitor. Replace if not within +/-10% of manufacture's rating.
		Check bearings. Replace the motor if the fan blade cannot rotate freely.
		Pay attention to any change from high speed to low speed. Replace the motor if the speed does not change.
Fan motor noise	Fan	Replace the fan if cracked, out of balance, or partially missing.
	Blower	Replace the blower if cracked, out of balance, or partially missing.

	Loose screws	Tighten them.
	Worn bearings	Replace the motor if knocking sounds continue when running or loose, or the motor hums or noise appears to be internal while running.
The compressor not to stop even the room temperature has got to the setting temperature.	Thermostat	Check and replace if the thermostat is damaged.

PROBLEM	**POSSIBLE CAUSE**	**REMARK**
Insufficient cooling or heating.	Air filter	Clean or replace if restricted.
	Vent door	Close if open.
	Unit undersized	Determine if the unit is properly sized for the area to be cooled or heated.
	Condenser and Evaporator	Clean or replace if restricted.
	Fan motor	Check the fan capacitor and replace if not within +/-10% of manufactures rating.
	Room structure	Take proper measures to make the door and windows sealed well if gap is found.
	Air flow	Clean or remove if any barrier is found to block the inlet/outlet wind flow of the unit.
	Sunlight	Add a awning if the condenser is exposed to the sunlight.
	Less refrigerant	Check the tubes for reasons of leakage. Recycle the refrigerant, correct the leakage points and recharge.
	Capillary tube	Regulate the flow if capillary tube and make the evaporating temperature appropriate if the evaporator is frosted. Replace if blocked. Repair joint if leaking.
	Compressor	The inlet and outlet valve of the compressor is damaged, making the low pressure connected with the high pressure. The refrigerating system can not produce high pressure and low pressure. Replace the compressor after checking for the reason.
	Heat sources	Reduce if too many.
	reverse valve	The seal in valve is damaged, making the low pressure

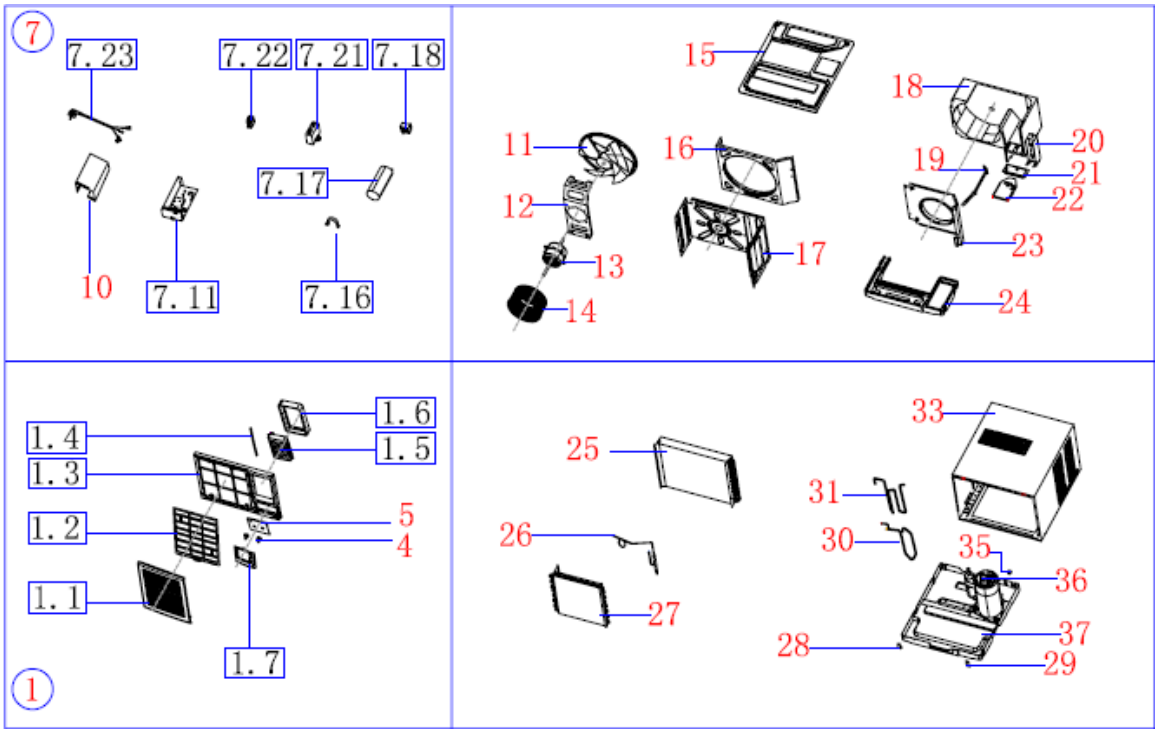
		connected with the high pressure. The refrigerating system can not produce high pressure and low pressure. Replace the reverse valve after checking for the reason.
	Drainage	The drainage is blocked. It will increase the efficiency in cooling mode, but will cause the condenser to frost in heating mode.

PROBLEM	**POSSIBLE CAUSE**	**REMARK**
Stop instantly after startup.	Refrigerant	The amount of the refrigerant is too much, making the compressor load too big. Recycle and recharge the refrigerant after checking for the reason.
	Compressor	The compressor is seized. Replace after checking for the reason.
No cooling or heating.	No power	Check the voltage. Call an electrician if no within the limit.
	Wiring	Check the terminals. Repair and correct if loose.
	Temperature setting	Check and adjust the thermostat.
	Main switch setting	Check and adjust the main switch setting.
	Reverse valve wire	Check the resistance of reverse valve wire. Replace the wire if short, open or damaged.
	Reverse valve	If the reverse valve is blocked, the heating mode will not perform. Replace the reverse valve after checking the reason.
Compressor will not run while fan motor runs.	Voltage	Check voltage. Call Supply Authority if not within limits.
	Wiring	Check the wire connections, if loose, repair or replace the terminal. If wires are off, refer to wiring diagram for identification, and replace. Check wire locations. If not per wiring diagram, correct.
	Main switch failure	Check and replace the main switch if failure.
	Capacitor (Discharge capacitor before testing)	Check the capacitor. Replace if not within +/-10% of manufacturers rating. Replace if shorted, open, or damaged.
	Thermostat	Check the thermostat setting if not at the coolest

		(in cooling mode) or the warmest (in heating mode). Set it if not.
	Compressor	Check the compressor for open circuit or ground. If open or grounded, replace the compressor.
Excessive noise.	Copper tubing	Remove the cabinet and carefully rearrange tubing not to contact cabinet, compressor, shroud and barrier.
The unit starts and stops frequently.	Power supply	The input power supply voltage is too low. Call an electrician if not within limits.
	Outdoor temperature	When the outdoor temperature is too high, the compressor will protect.

■ 10. Exploding view.

(1). FR-KC26/N1-EE1(B4)(MWH-09CMN1-QB4)

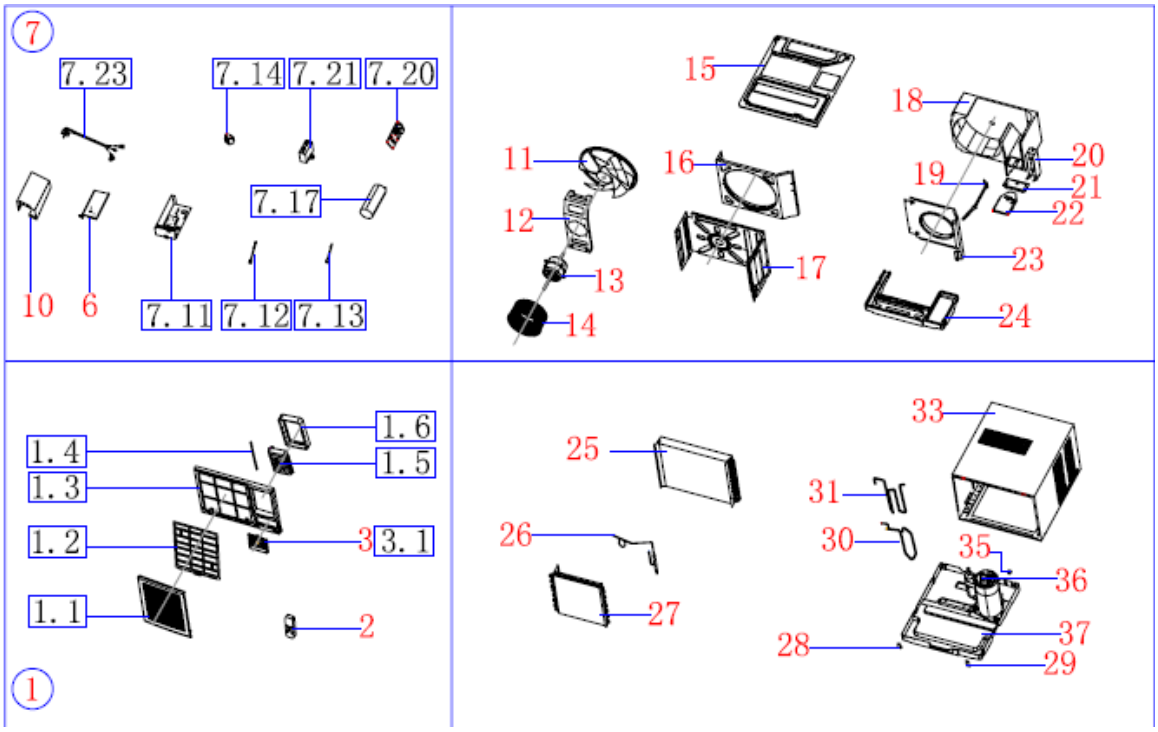


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	14	Centrfugal fan	1
1.1	Front panel	1	15	Cover	1
1.2	Filter	1	16	Rear separating board	1
1.3	Front frame	1	17	Front separating board	1
1.4	Louver holder	1	18	Scroll	1
1.5	Horizontal louver	9	19	Vent door	1
1.6	Air out frame	1	20	Air leading board	1
1.7	Cover for Control panel	1	21	Seat	1
4	Knob	2	22	Guide seat	1

5	Control cover	1	23	Air-inlet board	1
7	E-Part box assembly	1	24	Evaporator base	1
7.11	E-Part box	1	25	Condensator	1
7.16	Capacitor clamp	1	26	Capillary assembly	1
7.17	Compressor capacitor	1	27	Evaporator	1
7.18	Main switch	1	28	Left retaining plate of chassis	1
7.21	Capacitor	1	29	Right retaining plate of chassis	1
7.22	Temperature controller	1	30	Suction pipe	1
7.23	Power cord	1	31	Discharge pipe	1
10	E-part box cover	1	33	Cabinet assembly	1
11	Propeller fan	1	35	Rubber	2
12	Holder for fan motor	1	36	Compressor	1
13	Fan motor	1	37	Chassis assembly	1

(2). FR-KC26/N1Y-EE1(B4)(MWH-09CRN1-QB4)

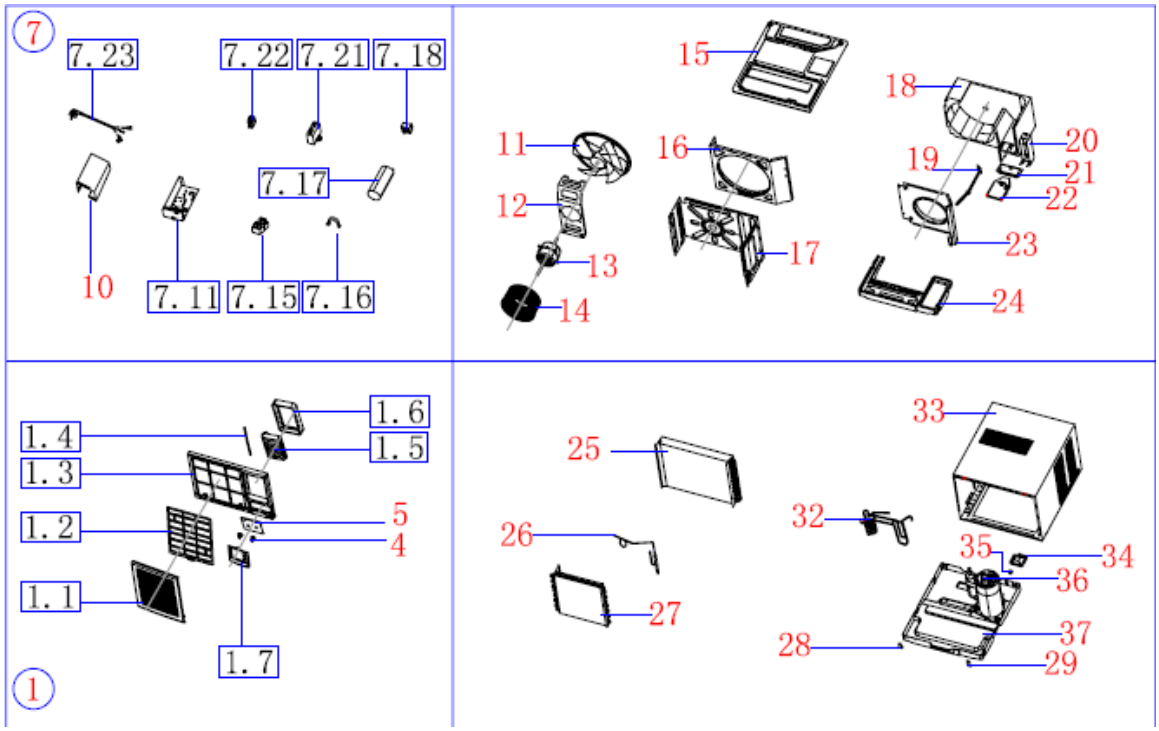


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	13	Fan motor	1
1.1	Front panel	1	14	Centrfugal fan	1
1.2	Filter	1	15	Cover	1
1.3	Front frame	1	16	Rear separating board	1
1.4	Louver holder	1	17	Front separating board	1
1.5	Horizontal louver	9	18	Scroll	1
1.6	Air out frame	1	19	Vent door	1
2	Remote controller	1	20	Air leading board	1
3	Display box assembly	1	21	Seat	1
3.1	Control panel	1	22	Guide seat	1
6	Fixing board for E-parts box	1	23	Air-inlet board	1
7	E-Part box assembly	1	24	Evaporator base	1

7.11	E-Part box	1	25	Condensator	1
7.12	Indoor temperature sensor	1	26	Capillary assembly	1
7.13	Pipe temperature sensor	1	27	Evaporator	1
7.14	Transformer	1	28	Left retaining plate of chassis	1
7.17	Compressor capacitor	1	29	Right retaining plate of chassis	1
7.20	Main control board	1	30	Suction pipe	1
7.21	Capacitor	1	31	Discharge pipe	1
7.23	Power cord	1	33	Cabinet assembly	1
10	E-part box cover	1	35	Rubber	2
11	Propeller fan	1	36	Compressor	1
12	Holder for fan motor	1	37	Chassis assembly	1

(3). FR-KCR26/N1-EE1(B4)(MWH-09HMN1-QB4)

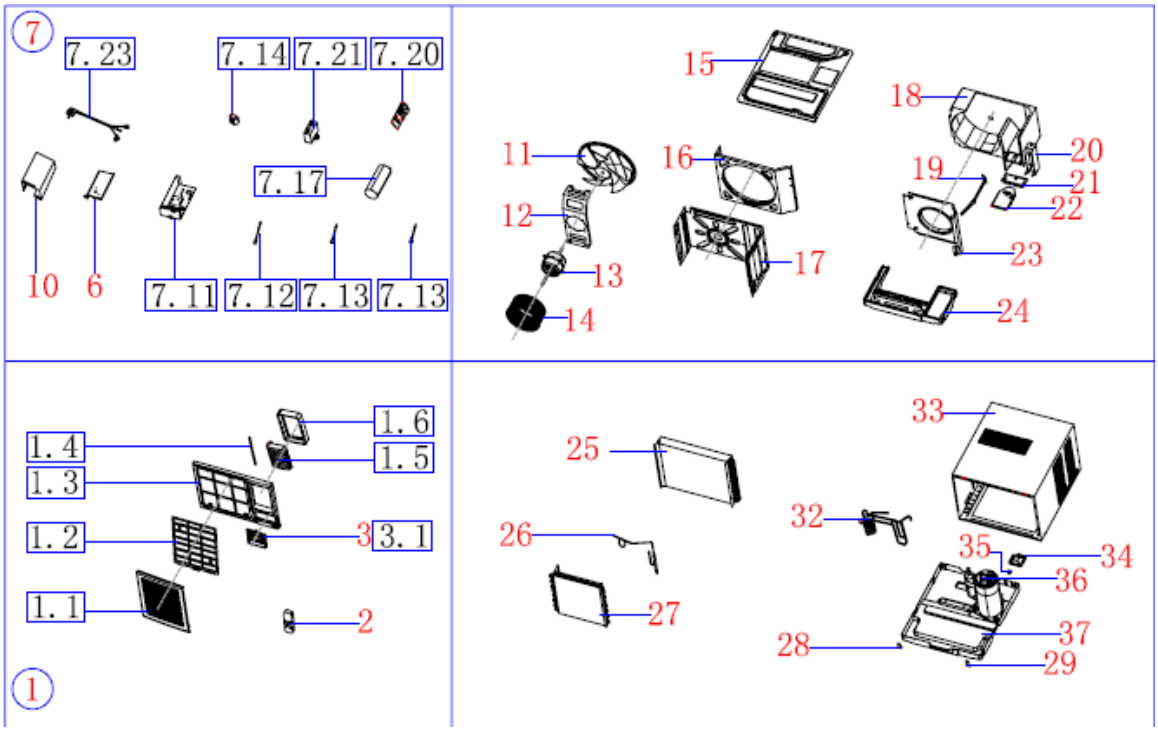


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	14	Centrfugal fan	1
1.1	Front panel	1	15	Cover	1
1.2	Filter	1	16	Rear separating board	1
1.3	Front frame	1	17	Front separating board	1
1.4	Louver holder	1	18	Scroll	1
1.5	Horizontal louver	9	19	Vent door	1
1.6	Air out frame	1	20	Air leading board	1
1.7	Cover for Control panel	1	21	Seat	1
4	Knob	2	22	Guide seat	1
5	Control cover	1	23	Air-inlet board	1
7	E-Part box assembly	1	24	Evaporator base	1
7.11	E-Part box	1	25	Condensator	1

7.15	Wire joint	2	26	Capillary assembly	1
7.16	Capacitor clamp	1	27	Evaporator	1
7.17	Compressor capacitor	1	28	Left retaining plate of chassis	1
7.18	Main switch	1	29	Right retaining plate of chassis	1
7.21	Capacitor	1	32	Four-ways valve assembly	1
7.22	Temperature controller	1	33	Cabinet assembly	1
7.23	Power cord	1	34	Water drain pan	1
10	E-part box cover	1	35	Rubber	1
11	Propeller fan	1	36	Compressor	1
12	Holder for fan motor	1	37	Chassis assembly	1
13	Fan motor	1	/	/	/

(4). FR-KCR26/N1Y-EE1(B4)(MWH-09HRN1-QB4)

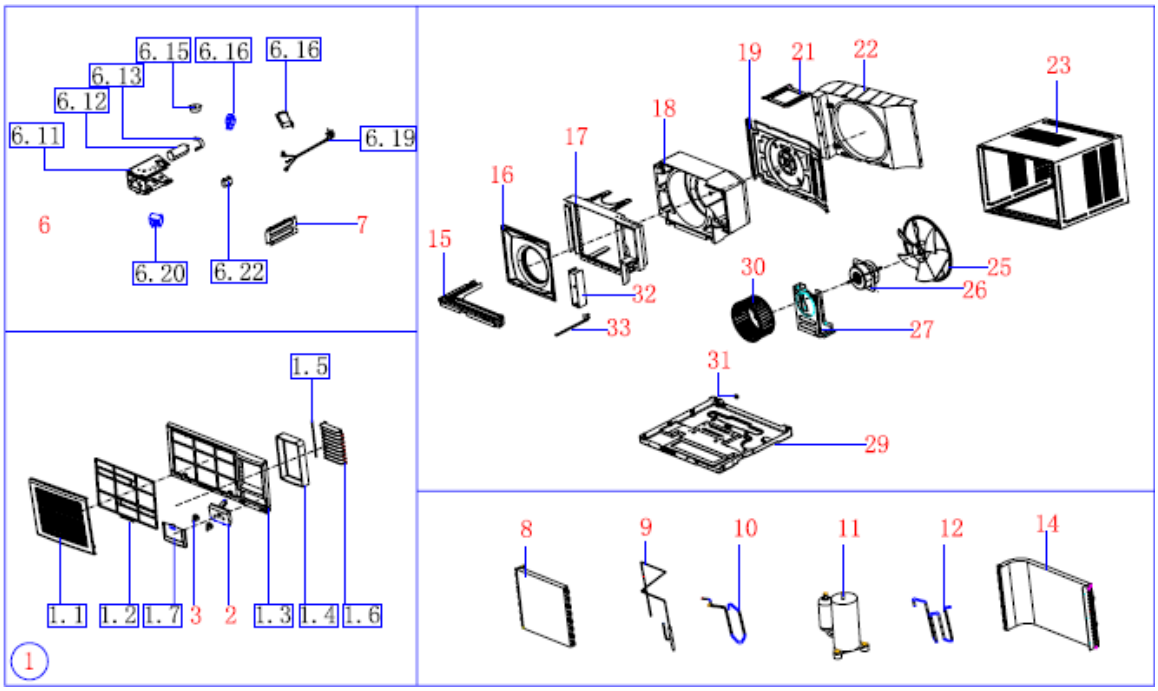


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	13	Fan motor	1
1.1	Front panel	1	14	Centrfugal fan	1
1.2	Filter	1	15	Cover	1
1.3	Front frame	1	16	Rear separating board	1
1.4	Louver holder	1	17	Front separating board	1
1.5	Horizontal louver	9	18	Scroll	1
1.6	Air out frame	1	19	Vent door	1
2	Remote controller	1	20	Air leading board	1
3	Display box assembly	1	21	Seat	1
3.1	Control panel	1	22	Guide seat	1
6	Fixing board for E-parts box	1	23	Air-inlet board	1
7	E-Part box assembly	1	24	Evaporator base	1

7.11	E-Part box	1	25	Condensator	1
7.12	Indoor temperature sensor	1	26	Capillary assembly	1
7.13	Pipe temperature sensor	1	27	Evaporator	1
7.13	Pipe temperature sensor	1	28	Left retaining plate of chassis	1
7.14	Transformer	1	29	Right retaining plate of chassis	1
7.17	Compressor capacitor	1	32	Four-ways valve assembly	1
7.20	Main control board	1	33	Cabinet assembly	1
7.21	Capacitor	1	34	Water drain pan	1
7.23	Power cord	1	35	Rubber	1
10	E-part box cover	1	36	Compressor	1
11	Propeller fan	1	37	Chassis assembly	1
12	Holder for fan motor	1	/	/	/

(5). FR-KC35/N1-F1E1(B4)(MWF1-12CMN1-QB4)

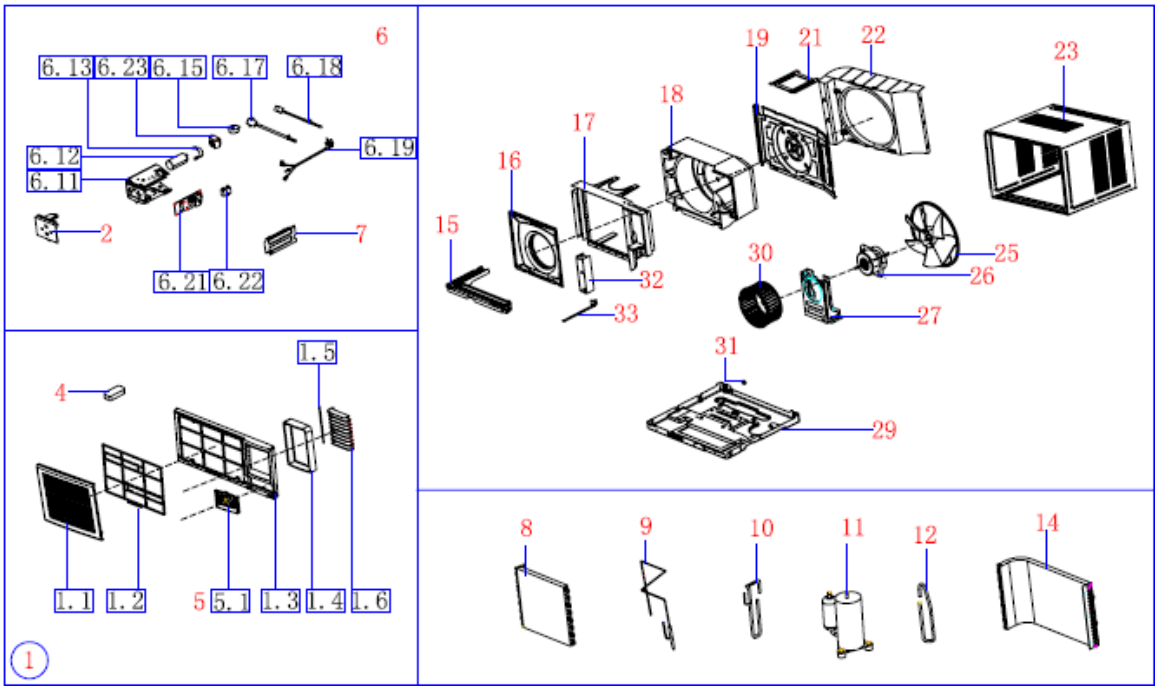


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	9	Capillary assembly	1
1.1	Front panel	1	10	Suction pipe	1
1.2	Filter	1	11	Compressor	1
1.3	Front frame	1	12	Discharge pipe	1
1.4	Air out frame	1	14	Condensor	1
1.5	Link, ventilation	1	15	Evaporator base	1
1.6	Horizontal louver II	9	16	Wind inlet guide	1
1.7	Control panel	1	17	Fan shell base	1
2	Control cover	1	18	Fan shell	1
3	Knob	2	19	Front board	1
6	E-Part box assembly	1	21	Buttstrap	1
6.11	E-Part box	1	22	Rear separating board	1

6.12	Compressor capacitor	1	23	Cabinet assembly	1
6.13	Capacitor clamp	1	25	Propeller fan	1
6.15	Swing motor	1	26	Fan motor	1
6.16	Temperature controller	1	27	Holder for fan motor	1
6.16	Temperature controller	1	29	Chassis assembly	1
6.19	Power cord assembly	1	30	Centrifugal fan	1
6.20	Main switch	1	31	Drain stopper	1
6.22	Capacitor	1	32	Air leading board	1
7	Side board of E-Part box	1	33	Vent door	1
8	Evaporator	1	/	/	/

(6). FR-KC35/N1Y-F1E1(B4)(MWF1-12CRN1-QB4)

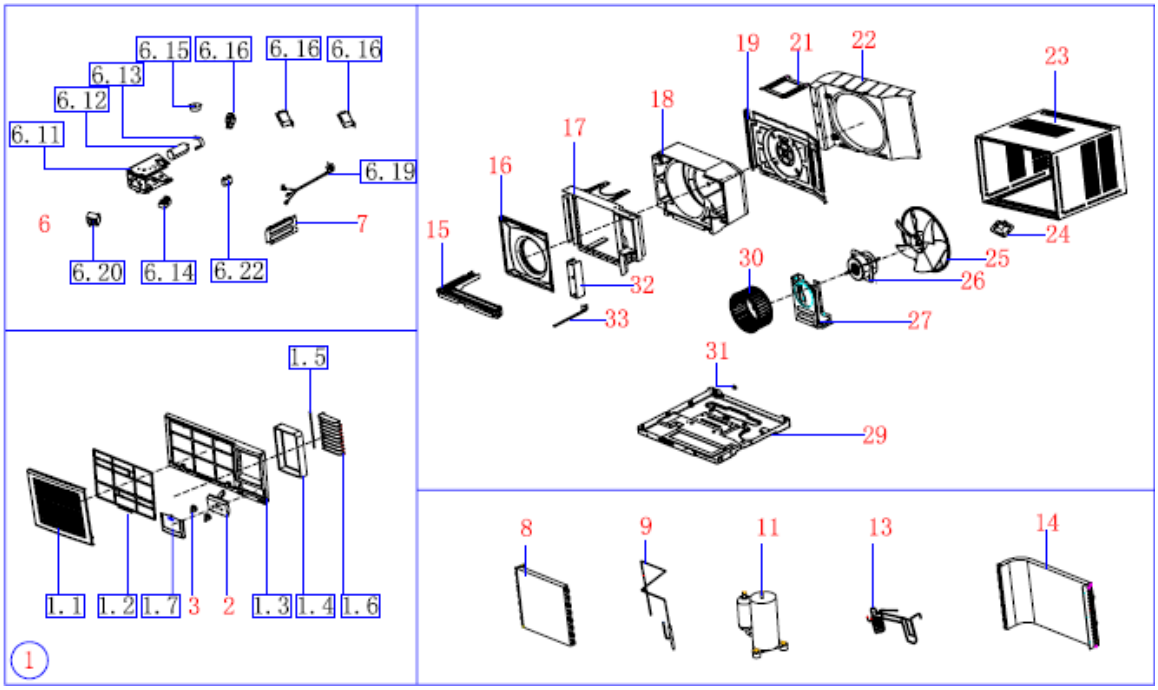


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	8	Evaporator	1
1.1	Front panel	1	9	Capillary assembly	1
1.2	Filter	1	10	Suction pipe	1
1.3	Front frame	1	11	Compressor	1
1.4	Air out frame	1	12	Discharge pipe	1
1.5	Link, ventilation	1	14	Condensor	1
1.6	Horizontal louver II	9	15	Evaporator base	1
2	Control cover	1	16	Wind inlet guide	1
4	Remote controller	1	17	Fan shell base	1
5	Display box assembly	1	18	Fan shell	1
5.1	Control panel	1	19	Front board	1

6	E-Part box assembly	1	21	Buttstrap	1
6.11	E-Part box	1	22	Rear separating board	1
6.12	Compressor capacitor	1	23	Cabinet assembly	1
6.13	Capacitor clamp	1	25	Propeller fan	1
6.15	Swing motor	1	26	Fan motor	1
6.17	Pipe temperature sensor	1	27	Holder for fan motor	1
6.18	Indoor temp sensor	1	29	Chassis assembly	1
6.19	Power cord assembly	1	30	Centrifugal fan	1
6.21	Main control board	1	31	Drain stopper	1
6.22	Capacitor	1	32	Air leading board	1
6.23	Transformer	1	33	Vent door	1
7	Side board of E-Part box	1	/	/	/

(7). FR-KCR35/N1-F1E1(B4)(MWF1-12HMN1-QB4)

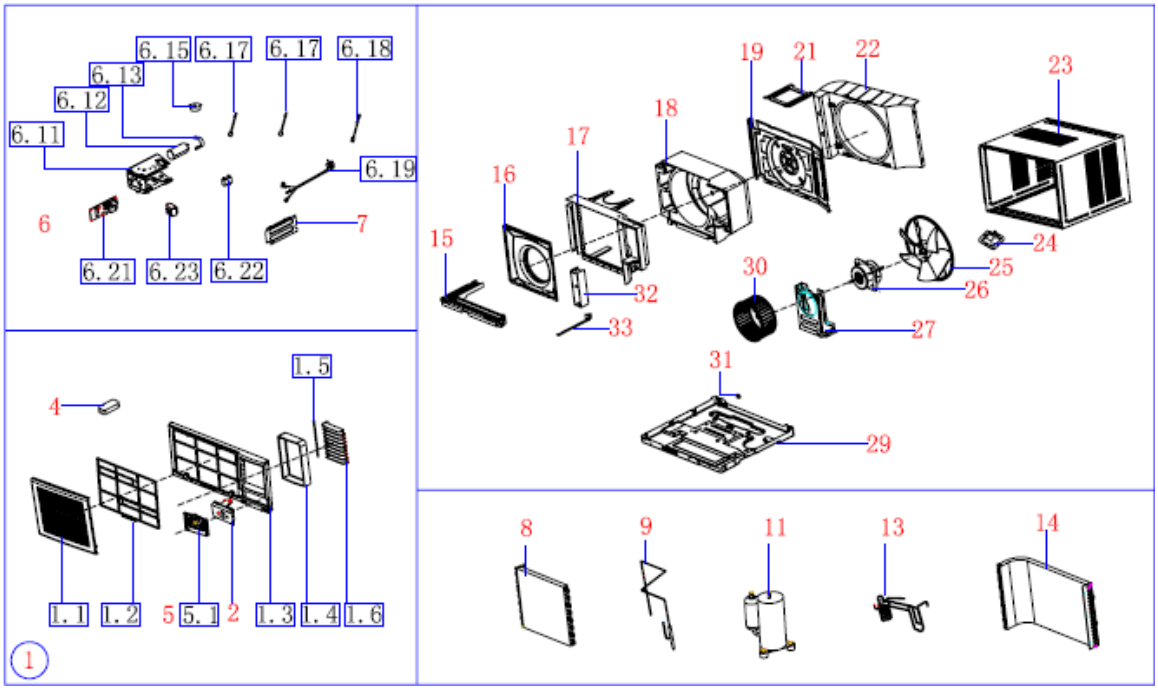


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	8	Evaporator	1
1.1	Front panel	1	9	Capillary assembly	1
1.2	Filter	1	11	Compressor	1
1.3	Front frame	1	13	Four-Way valve assembly	1
1.4	Air out frame	1	14	Condensor	1
1.5	Link, ventilation	1	15	Evaporator base	1
1.6	Horizontal louver II	9	16	Wind inlet guide	1
1.7	Control panel	1	17	Fan shell base	1
2	Control cover	1	18	Fan shell	1
3	Knob	2	19	Front board	1
6	E-Part box assembly	1	21	Buttstrap	1

6.11	E-Part box	1	22	Rear separating board	1
6.12	Compressor capacitor	1	23	Cabinet assembly	1
6.13	Capacitor clamp	1	24	water drain pan	1
6.14	Wire joint	1	25	Propeller fan	1
6.15	Swing motor	1	26	Fan motor	1
6.16	Temperature controller	1	27	Holder for fan motor	1
6.16	Temperature controller	1	29	Chassis assembly	1
6.16	Temperature controller	1	30	Centrifugal fan	1
6.19	Power cord assembly	1	31	Drain stopper	1
6.20	Main switch	1	32	Air leading board	1
6.22	Capacitor	1	33	Vent door	1
7	Side board of E-Part box	1	/	/	/

(8). FR-KCR35/N1Y-F1E1(B4)(MWF1-12HRN1-QB4)

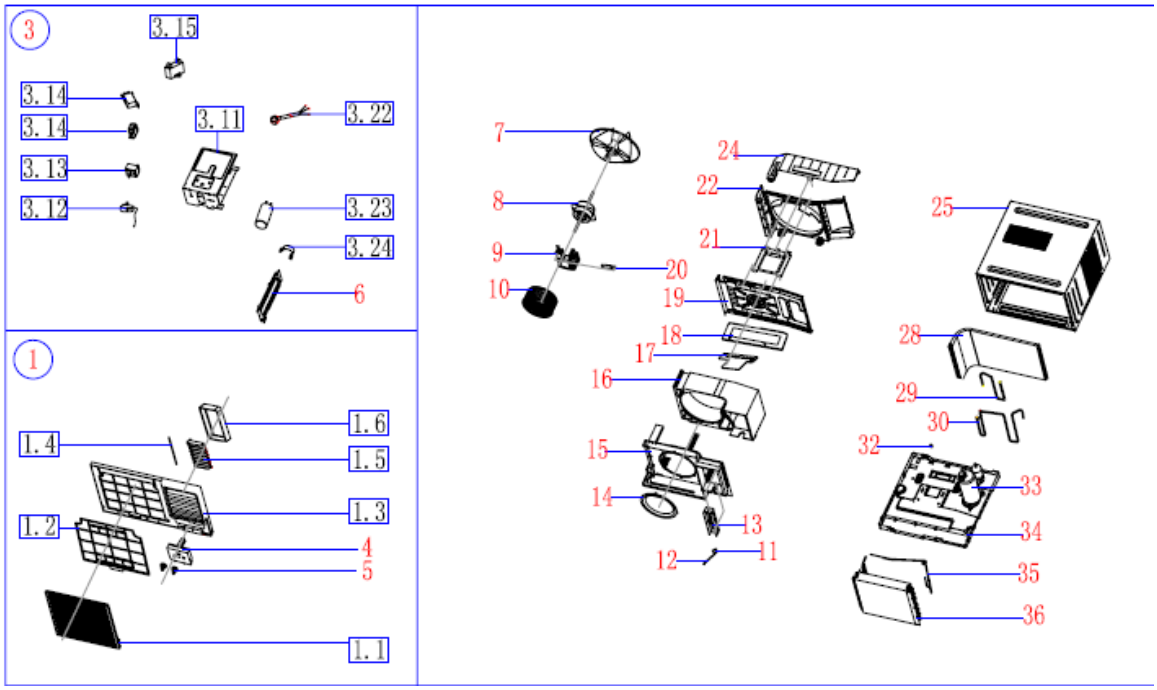


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	8	Evaporator	1
1.1	Front panel	1	9	Capillary assembly	1
1.2	Filter	1	11	Compressor	1
1.3	Front frame	1	13	Four-Way valve assembly	1
1.4	Air out frame	1	14	Condensor	1
1.5	Link, ventilation	1	15	Evaporator base	1
1.6	Horizontal louver II	9	16	Wind inlet guide	1
2	Control cover	1	17	Fan shell base	1
4	Remote controller	1	18	Fan shell	1
5	Display box assembly	1	19	Front board	1
5.1	Control panel	1	21	Buttstrap	1

6	E-Part box assembly	1	22	Rear separating board	1
6.11	E-Part box	1	23	Cabinet assembly	1
6.12	Compressor capacitor	1	24	water drain pan	1
6.13	Capacitor clamp	1	25	Propeller fan	1
6.15	Swing motor	1	26	Fan motor	1
6.17	Pipe temperature sensor	1	27	Holder for fan motor	1
6.18	Indoor temp sensor	1	29	Chassis assembly	1
6.19	Power cord assembly	1	30	Centrifugal fan	1
6.21	Main control board	1	31	Drain stopper	1
6.22	Capacitor	1	32	Air leading board	1
6.23	Transformer	1	33	Vent door	1
7	Side board of E-Part box	1	/	/	/

(9). CE-KC46/N1-FE1(B4)(MWF-16CMN1-QB4)

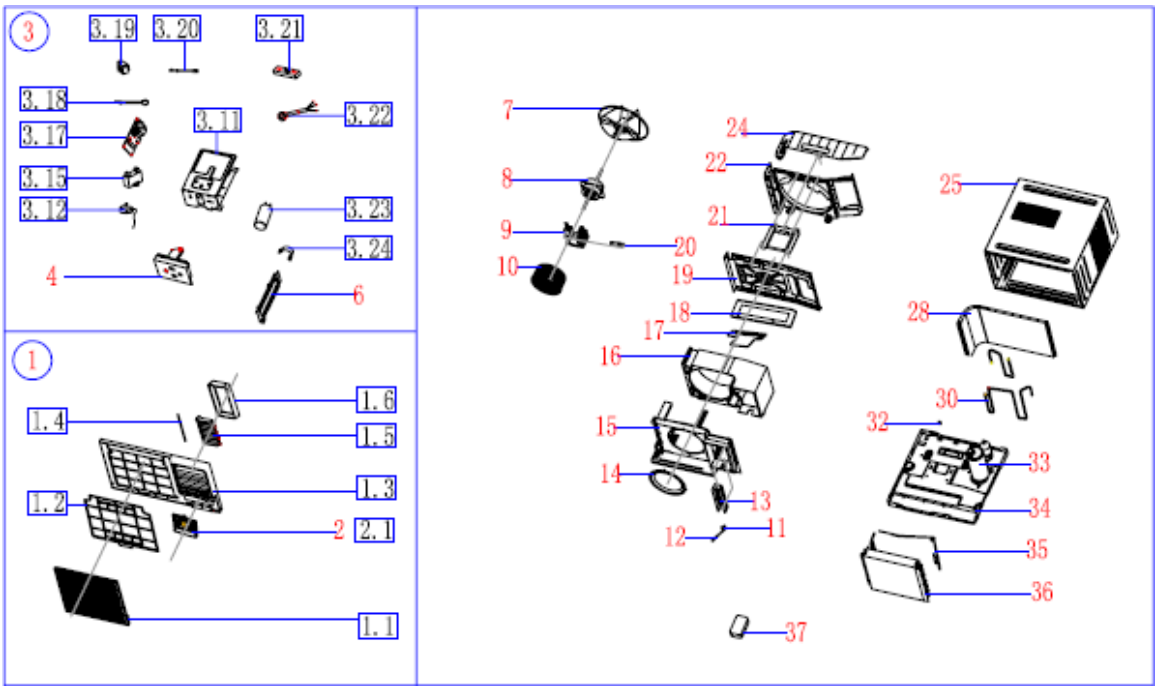


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	10	Centrifugal fan	1
1.1	Front panel	1	11	Vent door	1
1.2	Filter	1	12	Link, ventilation	1
1.3	Front frame	1	13	Air leading board	1
1.4	Louver holder	1	14	Wind inlet guide	1
1.5	Horizontal louver	10	15	Fan shell base	1
1.6	Air out frame assembly	1	16	Fan shell	1
1.7	Cover of front panel	1	17	Evaporator base	1
3	E-Part box assembly	1	18	Front cover	1
3.11	E-Part box	1	19	Front separating board	1
3.12	Swing motor	1	20	Connecting board	1

3.13	Main switch	1	21	Buttstrap	1
3.14	Temperature controller	1	22	Rear separating board	1
3.14	Temperature controller	1	24	Rear cover	1
3.15	Capacitor	1	25	Cabinet assembly	1
3.22	Power cord assembly	1	28	Condensor	1
3.23	Compressor capacitor	1	29	Discharge pipe	1
3.24	Capacitor clamp	1	30	Suction pipe	1
4	Control cover	1	32	Drain stopper	1
5	Knob	2	33	Compressor	1
6	Side board of E-Part box	1	34	Chassis assembly	1
7	Propeller fan	1	35	Capillary assembly	1
8	Fan motor	1	36	Evaporator	1
9	Holder for fan motor	1	/	/	/

(10). CE-KC46/N1Y-FE1(B4)(MWF-16CRN1-QB4)

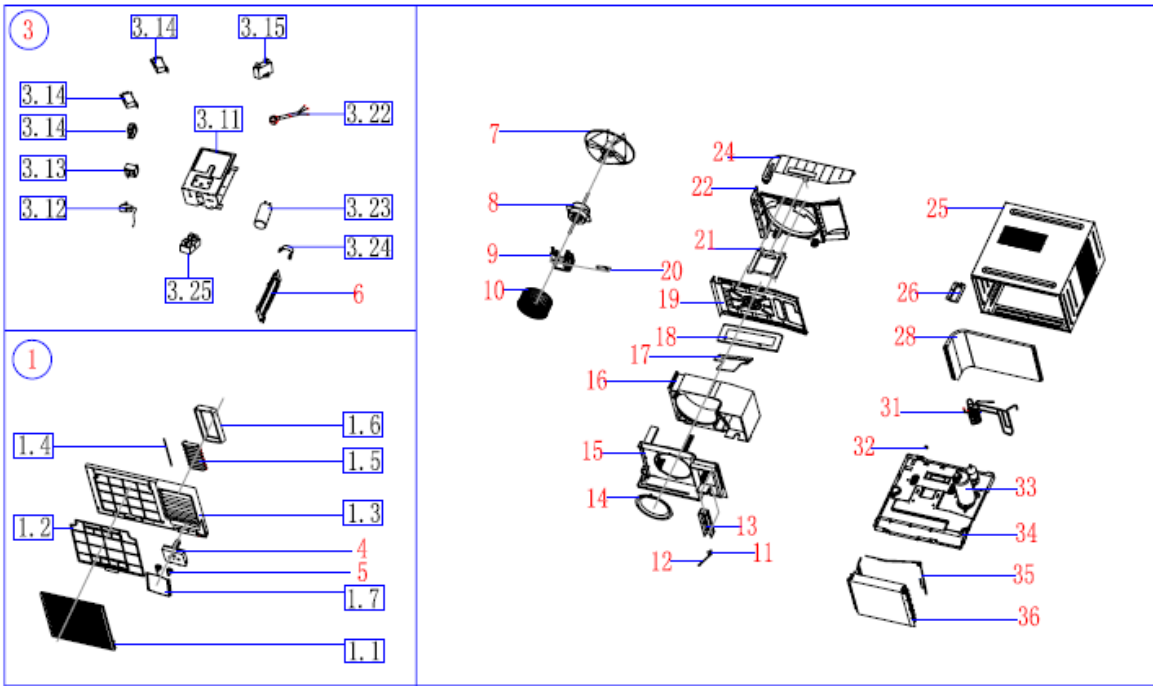


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	9	Holder for fan motor	1
1.1	Front panel	1	10	Centrifugal fan	1
1.2	Filter	1	11	Vent door	1
1.3	Front frame	1	12	Link, ventilation	1
1.4	Louver holder	1	13	Air leading board	1
1.5	Horizontal louver	10	14	Wind inlet guide	1
1.6	Air out frame assembly	1	15	Fan shell base	1
2	Display box assembly	1	16	Fan shell	1
2.1	Control panel	1	17	Evaporator base	1
3	E-Part box assembly	1	18	Front cover	1
3.11	E-Part box	1	19	Front separating board	1

3.12	Swing motor	1	20	Connecting board	1
3.15	Capacitor	1	21	Buttstrap	1
3.17	Main control board assembly	1	22	Rear separating board	1
3.18	Pipe temperature sensor assembly	1	24	Rear cover	1
3.19	Transformer	1	25	Cabinet assembly	1
3.20	Indoor temp sensor assembly	1	28	Condensor	1
3.21	Wire joint base	1	30	Suction pipe	1
3.22	Power cord assembly	1	32	Drain stopper	1
3.23	Compressor capacitor	1	33	Compressor	1
3.24	Capacitor clamp	1	34	Chassis assembly	1
4	Control cover	1	35	Capillary assembly	1
6	Side board of E-Part box	1	36	Evaporator	1
7	Propeller fan	1	37	Remote controller	1
8	Fan motor	1	/	/	/

(11). CE-KCR46/N1-FE1(B4)(MWF-16HMN1-QB4)

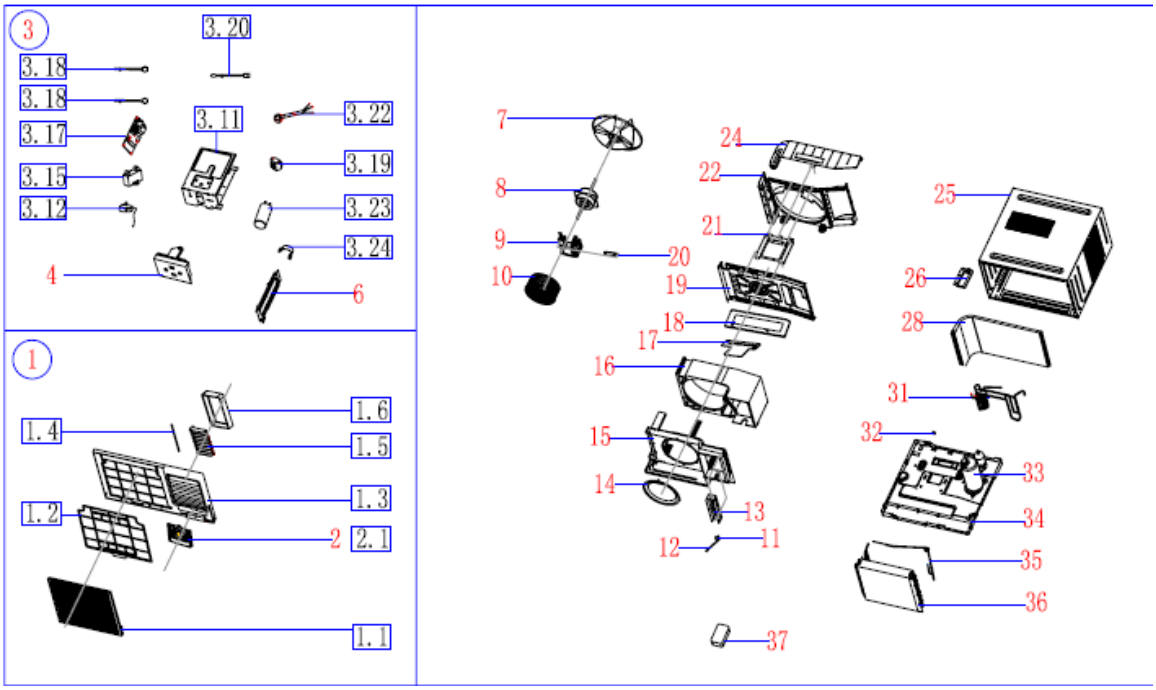


Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	9	Holder for fan motor	1
1.1	Front panel	1	10	Centrifugal fan	1
1.2	Filter	1	11	Vent door	1
1.3	Front frame	1	12	Link, ventilation	1
1.4	Louver holder	1	13	Air leading board	1
1.5	Horizontal louver	10	14	Wind inlet guide	1
1.6	Air out frame assembly	1	15	Fan shell base	1
1.7	Cover of front panel	1	16	Fan shell	1
3	E-Part box assembly	1	17	Evaporator base	1
3.11	E-Part box	1	18	Front cover	1
3.12	Swing motor	1	19	Front separating board	1

3.13	Main switch	1	20	Connecting board	1
3.14	Temperature controller	1	21	Buttstrap	1
3.14	Temperature controller	1	22	Rear separating board	1
3.14	Temperature controller	1	24	Rear cover	1
3.15	Capacitor	1	25	Cabinet assembly	1
3.22	Power cord assembly	1	26	water drain pan	1
3.23	Compressor capacitor	1	28	Condensor	1
3.24	Capacitor clamp	1	31	Four-Way valve assembly	1
3.25	Wire joint	2	32	Drain stopper	1
4	Control cover	1	33	Compressor	1
5	Knob	2	34	Chassis assembly	1
6	Side board of E-Part box	1	35	Capillary assembly	1
7	Propeller fan	1	36	Evaporator	1
8	Fan motor	1	/	/	/

(12). CE-KCR46/N1Y-FE1(B4)(MWF-16HRN1-QB4)



Part list:

No.	Part Name	Qty	No.	Part Name	Qty
1	Front panel assembly	1	9	Holder for fan motor	1
1.1	Front panel	1	10	Centrifugal fan	1
1.2	Filter	1	11	Vent door	1
1.3	Front frame	1	12	Link, ventilation	1
1.4	Louver holder	1	13	Air leading board	1
1.5	Horizontal louver	10	14	Wind inlet guide	1
1.6	Air out frame assembly	1	15	Fan shell base	1
2	Display box assembly	1	16	Fan shell	1
2.1	Control panel	1	17	Evaporator base	1
3	E-Part box assembly	1	18	Front cover	1

3.11	E-Part box	1	19	Front separating board	1
3.12	Swing motor	1	20	Connecting board	1
3.15	Capacitor	1	21	Buttstrap	1
3.17	Main control board assembly	1	22	Rear separating board	1
3.18	Pipe temperature sensor assembly	1	24	Rear cover	1
3.18	Pipe temperature sensor assembly	1	25	Cabinet assembly	1
3.19	Transformer	1	26	water drain pan	1
3.20	Indoor temp sensor assembly	1	28	Condensor	1
3.22	Power cord assembly	1	31	Four-Way valve assembly	1
3.23	Compressor capacitor	1	32	Drain stopper	1
3.24	Capacitor clamp	1	33	Compressor	1
4	Control cover	1	34	Chassis assembly	1
6	Side board of E-Part box	1	35	Capillary assembly	1
7	Propeller fan	1	36	Evaporator	1
8	Fan motor	1	37	Remote controller	1

11. Specification

Project			G110-C21	G110-C21
Code			220021403010	220021702880
Model			**MWH-09CRN1-QB4**	**MWF1-12CRN1-QB4**
Power supply		Ph-V-Hz	1Ph, 220-240V~, 50Hz	1Ph, 220-240V~, 50Hz
Cooling	Capacity	Btu/h	9000	12000
	Input	W	1100	1450
	Rated current	A	4.8	6.5
	EER	W/W	2.41	2.41
Heating	Capacity	Btu/h	N/A	N/A
	Input	W	N/A	N/A
	Rated current	A	N/A	N/A
	COP	W/W	N/A	N/A
Moisture Removal		L/h	1	1.2
Max. input consumption		W	1450	1800
Max. current		A	7.8	10
Starting current		A	21.7	26.7
Compressor	Model		PA103M1C-4DZDE2	PA145G1C-4FT1
	Type		ROTARY	ROTARY
	Brand		TOSHIBA	TOSHIBA
	Capacity	Btu/h	8428/8530	12215/12334
	Input	W	830/860	1240/1330
	Rated current(RLA)	A	3.85/3.73	5.82/6.10
	Locked rotor Amp(LRA)	A	21.7	26.7
	Thermal protector		B160-135-241E	----
	Thermal protector position		EXTERNAL	INTERNAL
	Capacitor	uF	25	35
	Refrigerant oil/oil charge	ml	ESTER OIL VG74 .350	ESTER OIL VG74/400
Fan motor	Model		YSK60-4C(S)	YSK40-6F
	Brand		Welling	Welling
	Input	W	112/84.5	99/85/78
	Capacitor	uF	2.5	4
	Speed(Hi/Mi/Lo)	r/min	1270/1075	890/810/730
Evaporator	a.Number of rows		3	2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37	21x13.37
	c.Fin spacing	mm	1.2	1.3
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium
	e.Tube outside dia.and type	mm	Φ7,innergroove tube	Φ7,innergroove tube
	f.Coil length x height x width	mm	248x294x40.11	355x336x26.74
	g.Number of circuits		2	2
Condenser	a.Number of rows		2	2
	b.Tube pitch(a)x row pitch(b)	mm	19.5x11.6	19.5x11.6
	c.Fin spacing	mm	1.3	1.2
	d.Fin type (code)		UnHydrophilic aluminium	UnHydrophilic aluminium
	e.Tube outside dia.and type	mm	Φ5,innergroove tube	Φ5,innergroove tube

	f.Coil length x height x width	mm	370x331.5x23.2	623x351x23.2
	g.Number of circuits		2	2
Indoor Air Flow Volume		m3/h	420/395/360	460/420/370
Indoor Noise Level(H/M/L) Sound Pressure Level		dB(A)	51/49/45	53/50/47
Indoor Noise Level(H/M/L) Sound Power Level		dB(A)	60/57/54	62/59/56
Outdoor Air Flow Volume		m3/h	785/720/650	970/865/760
Outdoor Noise Level(H/M/L) Sound Pressure Level		dB(A)	58/57/54	59/57/55
Outdoor Noise Level(H/M/L) Sound Power Level		dB(A)	67/66/63	68/66/64
Refrigerant type		g	R410A / 360	R410A / 480
Design pressure		MPa	4.2/1.5	4.2/1.5
Plug type			1.0x3/VDE	1.5x3/VDE
Thermostat type			Remote control	Remote control
Operation temp		℃	17-30	17-30
Application area		m2	14-20	18-26
Dimension(W*H*D)		mm	450x350x540	600x380x560
Packing (W*H*D)		mm	495x435x580	685x430x620
Net/Gross weight		Kg	29.5/32	36.5/41
Qty’per 20’ /40’ /40'HQ			220/480/575	135/285/340

Project			G110-C21
Code			220021800960
Model			**MWF-16CRN1-QB4**
Power supply		Ph-V-Hz	1Ph, 220-240V~, 50Hz
Cooling	Capacity	Btu/h	16000
	Input	W	1950
	Rated current	A	9
	EER	W/W	2.41
Heating	Capacity	Btu/h	N/A
	Input	W	N/A
	Rated current	A	N/A
	COP	W/W	N/A
Moisture Removal		L/h	1.6
Max. input consumption		W	2700
Max. current		A	15
Starting current		A	25.9
Compressor	Model		PA185M2C-4FT2
	Type		ROTARY
	Brand		TOSHIBA
	Capacity	Btu/h	15252
	Input	W	1500
	Rated current(RLA)	A	7
	Locked rotor Amp(LRA)	A	25.9
	Thermal protector		----
	Thermal protector position		INTERNAL
	Capacitor	uF	35
	Refrigerant oil/oil charge	ml	ESTER OIL VG74 480cc
Fan motor	Model		YSK90-6
	Brand		Welling
	Input	W	165/155/145
	Capacitor	uF	6
	Speed(Hi/Mi/Lo)	r/min	770/690/620
Evaporator	a.Number of rows		2
	b.Tube pitch(a)x row pitch(b)	mm	21x13.37
	c.Fin spacing	mm	1.3
	d.Fin type (code)		Hydrophilic aluminium
	e.Tube outside dia.and type	mm	Φ7, innergroove tube
	f.Coil length x height x width	mm	390x378x26.74
	g.Number of circuits		4
Condenser	a.Number of rows		1.5
	b.Tube pitch(a)x row pitch(b)	mm	19.5x11.6
	c.Fin spacing	mm	1.2
	d.Fin type (code)		Unhydrophilic aluminium
	e.Tube outside dia.and type	mm	Φ5, innergroove tube

	f.Coil length x height x width	mm	688x390x11.6+450x390x11.6
	g.Number of circuits		3
Indoor Air Flow Volume		m3/h	730/650/570
Indoor Noise Level(H/M/L) Sound Pressure Level		dB(A)	54/50/48
Indoor Noise Level(H/M/L) Sound Power Level		dB(A)	63/60/57
Outdoor Air Flow Volume		m3/h	1225/1100/970
Outdoor Noise Level(H/M/L) Sound Pressure Level		dB(A)	59/58/55
Outdoor Noise Level(H/M/L) Sound Power Level		dB(A)	68/67/64
Refrigerant type		g	R410A / 630
Design pressure		MPa	4.2/1.5
Plug type			2.5x3/---
Thermostat type			Remote control
Operation temp		℃	17-30
Application area		m2	21-35
Dimension(W*H*D)		mm	660x430x687
Packing (W*H*D)		mm	746x515x815
Net/Gross weight		Kg	49/53.5
Qty’per 20’ /40’ /40'HQ			84/176/220